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CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) Compliance with Other Laws Manual: Part 2 Clean Air Act and Other Environmental Statutes and State Requirements

(U.S.) Environmental Protection Agency, Washington, DC

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Part II. Clean Air Act and Other Environmental Statutes and State Requirements

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Abstract: The purpose of the CERCLA Compliance with Other Laws Manual is to assist Remedial Project Managers (RPMs) in identifying and complying with all applicable or relevant and appropriate requirements (ARARs) for remedial actions taken at Superfund sites. This part of the guidance manual addresses CERCLA compliance with the Clean Air Act and other environmental statutes for remedial actions.

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CERCLA COMPLIANCE WITH OTHER LAWS MANUAL

PART II

CLEAN AIR ACT AND OTHER ENVIRONMENTAL STATUTES AND STATE REQUIREMENTS

INTERIM FINAL

Office of Emergency and Remedial Response
Policy and Analysis Staff

Office of Solid Waste and Emergency Response

U.S. Environmental Protection Agency
Washington, D.C.

NOTICE

This manual is a companion volume to the CERCLA Compliance With Other Laws Manual that was made available to the public as a draft, dated August 8, 1988. That volume should now be considered interim final.

The policies in Part I and Part II of the CERCLA Compliance With Other Laws Manual are based on policies in the proposed revisions to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which was published on December 21, 1988 (53 FR 51394). The final NCP may adopt policies different than those in these manuals and should, when promulgated, be considered the authoritative source.

Development of this part of the guidance was funded by the United State Environmental Protection Agency under Contract No. 68-01-7090 to ICF Incorporated.

The policies and procedures set out in this interim final guidance are intended solely for the guidance of Government personnel. They are not intended, nor can they be relied upon, to create any rights enforceable by any party in litigation with the United States. The Agency reserves the right to act at variance with these policies and procedures and to change them at any time without public notice.

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ACRONYMS USED IN PART II OF THIS MANUAL

ARARs - Applicable or Relevant and Appropriate Requirements
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as Superfund)
CFR - Code of Federal Regulations
CWA - Clean Water Act
DOD - Department of Defense
DOE - Department of Energy
DOI - Department of Interior
DOT - Department of Transportation
EPA - Environmental Protection Agency
FR - Federal Register
FS - Feasibility Study
HSWA - Hazardous and Solid Waste Amendments of 1984
MCLs - Maximum Contaminant Levels
NCP - National Contingency Plan
NEPA - National Environmental Policy Act
NPL - National Priorities List
NRC - Nuclear Regulatory Commission
OERR - Office of Emergency and Remedial Response
ORP - Office of Radiation Programs
OSC - On-Scene Coordinator
OSW - Office of Solid Waste
OSWER - Office of Solid Waste and Emergency Response
OWPE - Office of Waste Programs Enforcement
PCB - Polychlorinated Biphenyl
PRP - Potentially Responsible Party
RCRA - Resource Conservation and Recovery Act
RI/FS - Remedial Investigation/Feasibility Study
ROD - Record of Decision
RP - Responsible Party
RPM - Remedial Project Manager
SARA - Superfund Amendments and Reauthorization Act of 1986
SDWA - Safe Drinking Water Act
SI - Site Investigation
SMOA - Superfund Memorandum of Agreement
TBC - To Be Considered
TSDF - Treatment, Storage, and Disposal Facility

ACRONYMS SPECIFIC TO CHAPTERS IN PART II

ACRONYMS FOR CHAPTER 1

ARARs - Applicable or Relevant and Appropriate Requirements
CAA - Clean Air Act
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
RP - Responsible Party
RPMs - Remedial Project Managers
TSCA - Toxic Substances Control Act

ACRONYMS FOR CHAPTER 2

BACT - Best Available Control Technology
BDT - Best Demonstrated Technology
CAA - Clean Air Act
CTC - Control Technology Center
LAER - Lowest Achievable Emission Rate
NAAQS - National Ambient Air Quality Standards
NATICH - National Air Toxics Information Clearinghouse
NESHAP - National Emissions Standards for Hazardous Air Pollutants
NSPS - New Source Performance Standards
PCB - Polychlorinated Biphenyl
PM - Particulate Matter
PSD - Prevention of Significant Deterioration
RTP - Research Triangle Park
SIP - State Implementation Plan
TLV - Threshold Limit Values
VOC - Volatile Organic Compound

ACRONYMS FOR CHAPTER 3

CPSC - Consumer Product Safety Commission
PCB - Polychlorinated Biphenyl
OSHA - Occupational Safety and Health Administration
SPCC - Spill Prevention Containment and Countermeasure
TSCA - Toxic Substances Control Act

ACRONYMS FOR CHAPTER 4

ACHP - Advisory Council on Historic Preservation
BA - Biological Assessment
BO - Biological Opinion
CBRA - Coastal Barriers Resources Act
CRS - Cultural Resource Survey
CZMA - Coastal Zone Management Act
DOA - Department of Agriculture
ESA - Endangered Species Act
FWCA - Fish and Wildlife Coordination Act
FWS - U.S. Fish and Wildlife Service
NHPA - National Historic Preservation Act
NMFS - National Marine Fisheries Service
NRHP - National Register of Historic Places
SHPO - State Historic Preservation Office(r)
SMOA - Superfund Memorandum of Agreement
WSRA - Wild and Scenic Rivers Act

ACRONYMS FOR CHAPTER 5

AEA - Atomic Energy Act
ALARA - As Low As Is Reasonably Achievable
DCG - Derived Concentration Guide
FEMA - Federal Emergency Management Agency
FUSRAP - Formerly Utilized Sites Remedial Action Program
GJAP - Grand Junction Remedial Action Program
ICRP - International Commission on Radiological Protection
LLRWPAA - Low-Level Radioactive Waste Policy Amendments Act of 1985
LLWPA - Low-Level Waste Policy Act of 1980
MCLs - Maximum Contaminant Levels
NARM - Naturally Occurring and Accelerator-Produced Radioactive Material
NCRP - National Council on Radiation Protection and Measurements
NESHAP - National Emissions Standard for Hazardous Air Pollutants
SFMP - Surplus Facilities Management Program
UMTRAP - Uranium Mill Tailings Remedial Action Program
UMTRCA - Uranium Mill Tailings Radiation Control Act
WL - Working Level

ACRONYMS FOR CHAPTER 6

OSM - Office of Surface Mining
SMCRA - Surface Mining Control and Reclamation Act
UMTRCA - Uranium Mill Tailings Radiation Control Act

ACRONYMS FOR CHAPTER 7

DER - Department of Environmental Regulation
NPDES - National Pollutant Discharge Elimination System
ONRW - Outstanding National Resource Waters
SIP - State Implementation Plan
SMOA - Superfund Memorandum of Agreement
TBC - To Be Considered

CHAPTER 1

INTRODUCTION AND OVERVIEW

The purpose of the CERCLA Compliance with Other Laws Manual is to assist Remedial Project Managers (RPMs) in identifying and complying with all applicable or relevant and appropriate requirements (ARARs) for remedial actions taken at Superfund sites. This part of the guidance manual addresses CERCLA compliance with the Clean Air Act and other environmental statutes for remedial actions.

Under CERCLA §121, remedies selected at Superfund sites must be protective of human health and the environment and must comply with ARARs.[1] Remedial actions taken under CERCLA §§104, 106, or 122 that are conducted entirely on site do not require Federal, State, or local permits, whether conducted by EPA, another Federal agency, a State, or a responsible party (RP). On-site remedies must comply with substantive requirements but need not comply with the administrative and procedural requirements. On-site remedial activities covered by the permit exemption includes any activity occurring on site prior to the response action itself (e.g., activities during the RI/FS). "On-site" is defined as the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. The reason for the permit exemption is to preserve flexibility and avoid lengthy, time-consuming procedures when developing and implementing remedial alternatives.

CERCLA actions involving the transfer of hazardous substances or pollutants or contaminants off site must comply with applicable Federal and State requirements and are not exempt from formal administrative permitting requirements. Off-site actions are not governed by the concept of relevant and appropriate.

CERCLA §121 also requires compliance with State environmental standards. A discussion of policies and procedures for evaluating State ARARs is presented in Chapter 7. Although this manual does not discuss in depth each State's standards, it does outline the criteria used for determining if a requirement is eligible to be a State ARAR, examines several types of State laws, and describes the process of communicating State ARARs during the RI/FS process.

This part of the guidance manual, Part II, describes general procedures for CERCLA compliance with applicable or relevant and appropriate requirements in environmental and public health statutes, programs, and policies that are not covered in Part I (RCRA, CWA, SDWA, and ground-water policies). This part covers the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), the

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[1] The requirements of CERCLA §121 generally apply as a matter of law only to remedial actions. However, as a matter of policy, EPA will attain ARARs to the extent practicable when conducting removal actions. Chapter 1 of Part I provides further guidance on ARARs and removal actions, as well as guidance on identifying ARARs for a Superfund site.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and several other statutes with potential ARARs. Part II is organized as follows:

- Chapter 1 provides an introduction and overview of this part of the guidance manual;
- Chapter 2 provides guidance for compliance with CAA requirements and related RCRA and State requirements;
- Chapter 3 provides guidance for compliance with statutes that address toxics and pesticides (i.e., TSCA and FIFRA);
- Chapter 4 provides guidance for compliance with other resource protection statutes. These statutes generally cover specific concerns or areas (e.g., endangered species, historic preservation, and coastal zones);
- Chapter 5 discusses potential ARARs and potentially useful guidance for cleaning up radioactively contaminated sites and buildings;
- Chapter 6 provides guidance for compliance with statutes incorporating standards for mining, milling, or smelting sites (other than uranium or thorium mines or mills, addressed in Chapter 4);
- Chapter 7 provides guidance on identifying and complying with State ARARs;
- Appendix A provides guidance for compliance with CAA Part C (Prevention of Significant Deterioration) requirements; and
- Appendix B describes the Federal/State relationships under major Federal environmental statutes.

Exhibits 1-1, 1-2, and 1-3 present potential chemical-, location-, and action-specific ARARs, respectively, for those statutes discussed in this part of the guidance manual. Within each exhibit, for the convenience of the reader, the requirements are organized by the chapter in which they are discussed in more detail. Remedial Project Managers should use these exhibits to develop a preliminary list of potential ARARs, then refer to the text for a full description of the requirement and the site-specific circumstances under which it may be an actual ARAR for the site. More information on the definition of each type of ARAR and the methodology for determining ARARs is presented in Part I, Chapter 1.

EXHIBIT 1-1

SELECTED CHEMICAL-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical Name	Requirements	Prerequisites for Applicability	Citation
CHAPTER 1 - CLEAN AIR ACT			
NESHAPS			
Mercury	Not more than 2,300 g/day	Mercury smelters, chloroalkali plants	Clean Air Act (CAA) 40 CFR Part 61
	Not more than 3,200 g/day	Sewage sludge incinerators/dryers	40 CFR Part 61 (CAA)
Arsenic [1]	Not more than 2.5 Mg/yr, or achieve 85% emission reduction	Existing glass manufacturing plants	40 CFR Part 61 (CAA)
	Not more than 0.4 Mg/yr, or achieve 85% emission reduction	New glass manufacturing plants	40 CFR Part 61 (CAA)
	Not more than 11.6 mg/m^3 particulate matter, design and operating requirements	Primary copper smelters	40 CFR Part 61 (CAA)
	Inspection, maintenance, and housekeeping	Arsenic trioxide and metallic arsenic production facilities	40 CFR Part 61 (CAA)
Asbestos	No visible emissions	Asbestos mills	40 CFR Part 61 (CAA)
	No surfacing with asbestos	Roadways	40 CFR Part 61 (CAA)
	No visible emissions	Manufacturing plants	40 CFR Part 61 (CAA)
	Notification, wet and remove friable asbestos	Demolition activities	40 CFR Part 61 (CAA)
	Limitations on concentration of asbestos, no visible emissions	Spraying operations	40 CFR Part 61 (CAA)
	No visible emissions	Fabricating shops	40 CFR Part 61 (CAA)
	No asbestos	Insulation operations	40 CFR Part 61 (CAA)
	No visible emissions	Mill waste disposal sites	40 CFR Part 61 (CAA)
	No visible emissions	Waste disposal--manufacturing, demolition/renovation, spraying, fabricating	40 CFR Part 61 (CAA)
	No visible emissions, design/work practice standards	Inactive waste disposal sites for mills, manufacturing, fabricating	40 CFR Part 61 (CAA)
	No visible emissions, design/work practice standards	Active waste disposal sites	40 CFR Part 61 (CAA)
Beryllium	Not more than 10 g/day or 0.01 g/m^3 ambient concentration (with 3 years of monitoring data)	Extraction plants, ceramic plants, foundries, incinerators, rocket propellant plants, machine shops	40 CFR Part 61 (CAA)
	Not more than 2 g/hr, maximum 10 g/day	Rocket motor test sites, collection of combustion products	40 CFR Part 61 (CAA)
Vinyl chloride	Not more than 10 ppm, equipment standards, work practice standards	Ethylene dichloride, vinyl chloride, and vinyl chloride polymer plants	40 CFR Part 61 (CAA)

EXHIBIT 1-1 (Continued)

SELECTED CHEMICAL-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical Name	Requirements	Prerequisites for Applicability	Citation
CHAPTER 1 - CLEAN AIR ACT			
NESHAPS			
Benzene 1/	No detectable emissions (approximately 500 ppm)	Fugitive leaks from equipment containing 10% benzene	40 CFR Part 61 (CAA)
Radionuclides 1/	25 mrem/year (whole body), 75 mrem/year (any critical organ)	DOE facilities, NRC licensees, and non-DOE Federal facilities, except from doses from radon-220, radon-222, and their decay products; facilities regulated under 40 CFR 190-192; and low-energy accelerators and users of sealed sources.	40 CFR Part 61 (CAA)
			40 CFR Part 61 (CAA)
		Elemental phosphorus	40 CFR Part 61 (CAA)
Radon 222	Design and operation Design and operation	Uranium mines Uranium mill tailings	40 CFR Part 61 (CAA) 40 CFR Part 61 (CAA)
Coke oven emissions	No visible emissions; operation and maintenance standards	Coke ovens	40 CFR Part 61 (CAA)
NAAQS 2/			
Carbon monoxide	Not to exceed 9 ppm over 8-hour period and not to exceed 35 ppm over a 1-hour period (primary); no secondary standards.	Major stationary and mobile sources.	40 CFR Part 50 (CAA)
Lead	Not to exceed 1.5 $\mu g/m^3$ based on a quarterly average.	Major stationary sources.	40 CFR Part 50 (CAA)
Nitrogen dioxide	Not to exceed 0.053 ppm annually.	Major stationary and mobile sources.	40 CFR Part 50 (CAA)
Particulate matter (PM_{10})	Not to exceed 50 $\mu g/m^3$ annually. Not to exceed 150 $\mu g/m^3$/24-hour period.	Major stationary sources.	40 CFR Part 50 (CAA) 40 CFR Part 50 (CAA)
Ozone	Not to exceed 0.12 ppm/hr.	Major stationary and mobile sources.	40 CFR Part 50 (CAA)
Sulfur oxides	Not to exceed 0.03 ppm annually. Not to exceed 0.14 ppm/24-hour period. Not to exceed 0.5 ppm/3-hour period.	Major stationary sources.	40 CFR Part 50 (CAA)

1/ The NESHAPs for arsenic, benzene, and radionuclides are being reexamined and may be revised as a result of a July 1987 court ruling on a vinyl chloride NESHAPs. The court required EPA to first consider only human health in determining a safe level of risk, and only then consider costs and technical feasibility in establishing an ample margin of safety.

2/ NAAQS are translated into source-specific requirements in State Implementation Plans (SIPs).

EXHIBIT 1-1 (Continued)

SELECTED CHEMICAL-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical Name	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTE			
Protection of Drinking Water Supplies from Radioactive Pollutants	Maximum contaminant levels for radioactivity in community water systems are set as follows: • 5 pCi/l of combined radium-226 and radium-228; or • 15 pCi/l of gross alpha particle activity (including radium-226 but excluding radon and uranium).	Applicable to community water systems, which are defined as public water systems that serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents.	Safe Drinking Water Act (SDWA) 40 CFR section 141.15
	The average annual concentration of beta particle and photon (i.e., gamma) radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem.	Applicable to community water systems, which are defined as public water systems that serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents.	40 CFR section 141.16 (SDWA)
Discharge of Radioactive Pollutants to Surface Waters	Best Available Technology: The concentration of pollutants discharged in drainage from mines that produce uranium ore shall not exceed: • 10 pCi/l of dissolved radium-226 in any one day or 3 pCi/l of dissolved radium-226 averaged over 30 consecutive days; • 30 pCi/l of total radium-226 in any one day or 10 pCi/l of total radium-226 averaged over 30 consecutive days; and • 4 mg/l of uranium in any one day or 2 mg/l of uranium averaged over 30 consecutive days.	Applicable to discharges of radium-226 and uranium from open-pit or underground mines from which uranium, radium, and vanadium ores are produced, including mines that use in-situ leach methods.	Clean Water Act (CWA) 40 CFR section 440.33

EXHIBIT 1-1 (Continued)

SELECTED CHEMICAL-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical Name	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTE			
Protection of Individuals in Restricted Areas (i.e., Workers) from Radiation Exposure	A variety of different radiation exposure limits are set for individuals in restricted areas, including a dose limit of 1.25 rem/ quarter (which is equivalent to 5 rem/year) to the whole body and radioactivity concentration limits for air and water in restricted areas (designed to limit worker exposures to 1.25 rem/quarter).	Applicable to all categories of NRC licensees; also applicable to Agreement State licensees. Applicable to exposures to source, byproduct, and special nuclear material, as well as to NARM released from facilities licensed to possess source, byproduct, and special nuclear material.	Atomic Energy Act (AEA) 10 CFR sections 20.101 through 20.104
Protection of Individuals in Unrestricted Areas from Radiation Exposure	Radiation exposure to members of the public is limited to: • A whole body dose of 0.5 rem/year; • 0.002 rem/hour; • 0.1 rem in any 7 consecutive days; and • The dose limits in 40 CFR Part 190 for operations within the uranium fuel cycle (see Section 4.1.1.3 of Chapter 4 of Part II).	Applicable to all categories of NRC licensees; also applicable to Agreement State licensees. Applicable to exposures to source, byproduct, and special nuclear material, as well as to NARM released from facilities licensed to possess source, byproduct, and special nuclear material.	10 CFR section 20.105 (AEA)
Discharge of Radionuclides to Unrestricted Areas (Air and Water)	Airborne and liquid discharges to unrestricted areas shall meet radionuclide-specific concentration limits in 10 CFR Part 20, Appendix B, Table II. These concentrations are designed to limit radiation exposure to members of the public to 0.5 rem/year to the whole body, blood-forming organs, and gonads; 3 rems/year to the bone and thyroid; and 1.5 rems/year to other organs. [14]	Applicable to all categories of NRC licensees; also applicable to Agreement State licensees. Applicable to releases of scurce, byproduct, and special nuclear material, as well as to NARM released from facilities licensed to possess source, byproduct, and special nuclear material.	10 CFR section 20.106 (AEA)

EXHIBIT 1-1 (Continued)

SELECTED CHEMICAL-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical Name	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTE			
Radioactive Waste Treatment and Disposal	A variety of waste disposal requirements are set, including those specifying how licensees may dispose of licensed material (see Section 4.2.1.1 of Chapter 4 of Part II), as well as concentration limits for disposal of radioactive waste into sanitary sewerage systems, requirements for treatment and disposal by incineration, and specific requirements for the disposal of radioactively contaminated animal tissue and liquid scintillation media.	Applicable to all categories of NRC licensees; also applicable to Agreement State licensees. Applicable to releases of source, byproduct, and special nuclear material.	10 CFR sections 20.301 through 20.311 (AEA)
		Certain requirements also apply to other radioactive materials, i.e., NARM released from facilities licensed to possess source, byproduct, and special nuclear material.	10 CFR sections 20.302(a) and 20.302(b) (AEA)
Control of Uranium or Thorium Mill Tailings	Control measures shall be designed to ensure that releases of radon-222 from residual radioactive material to the atmosphere will not exceed an average (applied over the entire surface of the disposal site and over at least a one-year period) release rate of 20 $pCi/m^2/sec$ or increase the average annual concentration of radon-222 in the atmosphere at or above any location outside the disposal site by more than 0.5 pCi/l.	Applicable to certain inactive uranium processing sites designated for remedial action under Title I of UMTRCA (see Chapter 4 for more detail).	Uranium Mill Tailings Radiation Control Act (UMTRCA) 40 CFR section 192.02(b)

14/ These dose limits are considered high relative to recent EPA standards (see discussion in Section 4.2.1.1 of this chapter).

EXHIBIT 1-2

SELECTED LOCATION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Location	Requirements	Prerequisites for Applicability	Citation
CHAPTER 1 - CLEAN AIR ACT			
NAAQS Attainment Areas	New major stationary sources shall apply best available control technology for each pollutant, subject to regulation under the Act, that the source would have potential to emit in significant amounts.	Major stationary sources as identified in 40 CFR section 52.21(b)(1)(i)(a) that emits, or has the potential to emit, 100 tons per year or more of any regulated pollutant; any other stationary source that emits, or has the potential to emit, 250 tons per year or more of any regulated pollutant.	40 CFR section 52.21(j) (CAA)
	Owner or operator of proposed source or modification shall demonstrate that allowable emissions increases or reductions (including secondary emissions) will not cause or contribute to a violation of the NAAQS or applicable maximum allowable increase over baseline concentrations.		
NAAQS Non-Attainment Areas	Source must obtain emission offsets in Air Quality Control Region of greater than one-to-one.	Any stationary facility or source of air pollutants that directly emits, or has the potential to emit, 100 tons per year or more of any air pollutant (including any major emitting facility or source of fugitive emissions of any such pollutants). [CAA §302(j)].	CAA Part D, §173(1)
	Source subject to "lowest achievable emission rate (LAER)" as defined in 40 CFR section 51.18(j)(xiii).		CAA Part D, §173(2)
	All major stationary sources owned or operated by the person in the State are in compliance, or on a schedule for compliance, with all applicable emission standards.		CAA Part D, §173(3)
CHAPTER 3 - OTHER RESOURCE PROTECTION STATUES			
Historic district, site, building, structure, or object.	Avoid impacts on cultural resources. Where impacts are unavoidable, mitigate through design and data recovery.	Properties listed in the National Register of Historic Places, or eligible for such listing.	National Historic Preservation Act (NHPA) 16 CFR Part 470, *et. seq.*
Critical habitat of/or an endangered or threatened species	Identify activities that may affect listed species.	Species or habitat listed as endangered or threatened.	Endangered Species Act (ESA) 50 CFR section 402.04
	Actions must not threaten the continued existence of a listed species.		50 CFR section 402.01
	Actions must not destroy critical habitat.		50 CFR section 402.01

EXHIBIT 1-2 (Continued)

SELECTED LOCATION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Location	Requirements	Prerequisites for Applicability	Citation
CHAPTER 3 - OTHER RESOURCE PROTECTION STATUES			
Wild and Scenic Rivers	Determine if project will affect the free-flowing characteristics, scenic, or natural values of a designated river; Not authorize any water resources project or any other project that would directly or indirectly impact any designated river without notifying DOE or Forest Service.	Any river, and the bordering or adjacent land, designated as "wild and scenic or recreational."	Wild and Scenic Rivers Act (WSRA) 36 CFR section 297.4
Coastal zone or an area that will affect the coastal zone	Federal activities must be consistent with, to the maximum extent practicable, State coastal zone management programs.	Wetland, flood plain, estuary, beach, dune, barrier island, coral reef, and fish and wildlife and their habitat, within the coastal zone.	Coastal Zone Management Act (CZMA) 15 CFR section 930.30
	Federal agencies must supply the State with a consistency determination.		15 CFR section 930.34 (CZMA)
Wilderness Area	The following are not allowed in a Wilderness area: • commercial enterprises • permanent roads, except as necessary to administer the area • motor vehicles • motorized equipment • motorboats • aircraft • mechanized transport • structures or buildings	Any unit of the National Wildlife Refuge System.	Wilderness Act (WA) 50 CFR section 35.5
CHAPTER 5 - MINING, MILLING SMELTING SITES			
Surface Mining Sites	Remove and segregate topsoil from site before remedial action. After cleanup redistribute original soil on site.	Applies to all surface coal mining operations except for non-commercial use, extraction of 250 tons or less, extraction as an incidental part of government-financed construction or of mining of other minerals, or extraction of coal that affects less than 2 acres (30 CFR section 700.11).	Surface Mining Control and Reclamation Act (SMCRA) 30 CFR section 816.22
	Minimize disturbance of the hydrologic balance within the permitted and adjacent areas.		30 CFR section 816.41 (SMCRA)
	Implement sediment control measures to minimize erosion and prevent additional contributions of sediment to streamflow or runoff. Measures instituted must attain State and Federal effluent limits.		30 CFR section 816.41 (SMCRA)
	Backfill and grade disturbed areas to approximate original contour, minimize erosion, and achieve a stable slope.		30 CFR section 816.102 (SMCRA)
	Revegetate disturbed area with species native to the area.		30 CFR section 816.11 (SMCRA)

EXHIBIT 1-3

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 1 - CLEAN AIR ACT			
New Source Performance Standards			
Incineration (general)	Particulate emissions shall be less than 0.08 grains per dry standard cubic foot corrected to 12% carbon dioxide.	Incinerator burning solid waste, more than 50% of which is municipal-type waste, for the purpose of reducing waste volume by removing combustible matter.	40 CFR section 60.52 (CAA)
Statutory Gas Turbines	Standard for NO_x emissions.	Stationary gas turbines with load heat input equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.	40 CFR section 60.332 (CAA)
	SO_2 emissions shall be less than 0.015% by volume at 15% oxygen and on a dry basis.		40 CFR section 60.333 (CAA)
Storage of Petroleum Liquids	Floating roof, vapor recovery system, or their equivalents.	Storage vessel constructed after 6/11/73 and prior to 5/19/78 having storage capacity greater than 40,000 gallons, storing petroleum liquids with vapor pressure equal to or greater than 1.5 psia.	40 CFR section 60.112 (CAA)
	Floating roof or vapor recovery system.	Storage vessels constructed after 5/18/78 having storage capacity greater than 40,000 gallons, storing petroleum liquids with vapor pressure equal to or greater than 1.5 psia.	40 CFR section 60.112(a) (CAA)
CHAPTER 2 - TOXICS/PESTICIDES			
PCB Storage Prior to Disposal	All Storage Areas 1/ Storage facilities must be constructed: • With an adequate roof and walls. • With a floor and curb of impervious materials. • Without drain valves, floor-drains, expansion joints, sewer lines or other openings. • Above the 100-year flood water level.	Storage of PCBs at concentrations of 50 ppm or greater and PCB items with PCB concentrations of 50 ppm or greater.	Toxic Substances Control Act (TSCA) 40 CFR section 761.65

1/ Bulk storage requires the preparation and implementation of an SPCC Plan (see 40 CFR section 761.65(c)(7)(ii) for specifications of container sizes that are considered "bulk" storage containers). Substantive requirements may be ARARs if bulk storage is performed on-site.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
PCB Storage Prior to Disposal (continued)	Temporary Storage (30 days or less) Temporary storage (up to 30 days from the date of initial storage) need not comply with above storage regulations for the following items: • PCB articles and equipment that are non-leaking. • Leaking articles and equipment placed in non-leaking containers. • PCB containers containing non-liquid PCBs, such as contaminated soil, rags, debris. • Liquid PCB containers containing PCBs between 50-500 ppm if covered by a spill prevention, control, and countermeasure plan.		40 CFR section 761.65 (TSCA)
	All Storage Areas Storage area must be properly marked.		40 CFR section 761.65 (TSCA)
	No item of movable equipment used to handle PCBs that comes into contact with PCBs shall be moved from the storage area unless it has been decontaminated under section 761.79.		40 CFR section 761.65 (TSCA)
	All stored articles must be checked for leaks every 30 days.		40 CFR section 761.65 (TSCA)
PCB Storage Prior to Disposal	Containers must be dated when they are placed in storage.		40 CFR section 761.65 (TSCA)
	All PCB articles or containers must be removed and disposed of within 1 year of storage.		40 CFR section 761.65 (TSCA)
			40 CFR sections 761.65 and 761.180 (TSCA).

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPRORIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Incineration of Liquid PCBs	Combustion requirements: • Either: 2-second dwell time at 1200° C(± 100°C) and 3 percent excess oxygen in stack gas; or 1.5 second dwell time at 1600° C and 2 percent excess oxygen in stack gas; • Combustion efficiency of at least 99.9999 percent. • Rate and quantity of PCBs fed to the combustion system shall be measured and recorded at regular intervals no longer than 15 minutes. • Temperature of incineration shall be continuously measured and recorded. • Flow of PCBs to incinerator must stop automatically whenever the combustion temperature drops below specified temperature.	Incineration of liquid PCBs at concentrations of 50 ppm or greater unless specified in 40 CFR section 761.70. 2/	40 CFR section 761.70 (TSCA)

2/ An approved incinerator (under section 761.70) can be used to destroy any concentration of PCBs; a high-efficiency boiler approved under section 761.60(a)(2)(iii) can be used for mineral oil dielectric fluid from PCB-contaminated electrical equipment containing PCBs in concentrations greater than or equal to 50 ppm but less than 500 ppm; and a RCRA-approved incinerator (under RCRA §3005(a)) can be used for PCBs that are not subject to the incineration requirements of TSCA (i.e., at concentrations less than 50 ppm). Except as provided in section 761.75(b)(ii), liquid PCBs shall not be processed into non-liquid forms to circumvent the high-temperature incineration requirements of section 761.60(a).

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Incineration of Liquid PCBs (continued)	Monitoring must occur: • When the incinerator is first used or modified; monitoring must measure for O_2, CO, CO_2, Oxides of Nitrogen, HCl, RCl, PCBs, Total Particulate Matter.		40 CFR section 761.70 (TSCA)
	• Whenever the incinerator is incinerating PCBs, the O_2 and CO levels must be continuously checked. CO_2 must be periodically checked.		40 CFR section 761.70 (TSCA)
	Water scrubbers must be used for HCl control.		
	Treatment standards under RCRA land disposal restrictions (LDRs): • incineration; or • burning in high efficiency boilers. 3/	Incineration of liquid PCBs under the California List Waste land disposal restrictions, assuming that HOC wastes are mixed with a RCRA-listed or -characteristic waste and total HOC concentration is equal to or greater than 1,000 mg/kg or PCB concentration alone is 50 ppm.	Resource Conservation and Recovery Act (RCRA) 40 CFR section 268.42
Incineration of Non-Liquid PCBs, PCB Articles, PCB Equipment, and PCB Containers	Same as for liquid PCBs.	Incineration of non-liquid PCBs, PCB articles, PCB equipment, and PCB containers at concentrations of 50 ppm or greater unless specified in 40 CFR section 761.60 4/	40 CFR section 761.70 (TSCA)
	Mass air emissions from the incinerator shall be no greater than 0.001g PCB per kg of the PCBs entering the incinerator.		40 CFR section 761.70 (TSCA)
	Monitoring is required.		40 CFR sections 761.70 and 761.180 (TSCA)
	Same as for liquid PCBs.	Incineration of non-liquid PCBs regulated as HOCs under the California List Wastes land disposal restrictions, provided that HOC wastes are mixed with a RCRA-listed or RCRA-characteristic waste and total HOC concentrations equal to or greater than 1,000 mg/kg.	40 CFR section 268.42 (RCRA)

3/ The incineration requirements of 40 CFR Part 264, Subpart 0, and Part 265, Subpart 0, are listed in Exhibit 1-3 of Part I of this Guidance, pp. 1-44 and 1-45.

4/ Incineration of non-liquid PCBs can only be carried out in TSCA-approved incinerators (under section 761.60), which may be used to destroy any concentration of PCBs.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Chemical Landfilling of PCBs	Landfill must be located in thick, relatively impermeable soil formation or on soil with high clay and silt content with: • Soil thickness of 4 feet, or compacted soil liner thickness of 3 feet. • Permeability (cm/sec), less than 1x10^{-7}. • Percent soil passing No. 200 sieve, greater than 30. • Liquid limit, greater than 30. • Plasticity Index greater than 15.	Disposal of PCBs and PCB Items in a chemical waste landfill. • Mineral oil dielectric fluid from PCB-contaminated electrical equipment or other liquids containing PCBs at a concentration of 50 ppm or greater but less than 500 ppm. • Non-liquid PCBs at concentrations of 50 ppm or greater. • PCB Transformers, other PCB articles, PCB small capacitors, and PCB containers at concentrations of 500 ppm or greater.	40 CFR section 761.75 (TSCA)
	Synthetic membranes must be used when landfill conditions cannot fulfill permeability requirement.		40 CFR section 761.75 (TSCA)
	Avoid placing landfill in floodplain, shoreline, or ground-water recharge areas and below the historical high ground-water table.		40 CFR section 761.75 (TSCA)
	Provide surface-water diversion dikes around the landfill if the site is below the 100-year flood-water elevation.		40 CFR section 761.75 (TSCA)
	Provide diversion structures capable of diverting all surface water from a 24-hour, 25-year storm.		
	Locate landfill in an area of low to moderate relief.		40 CFR section 761.75(6) (TSCA)
	Monitor ground water and surface water in disposal area prior to building a landfill.		
	Sample surface-water courses designated by the Regional Administrator, at least monthly.		40 CFR section 761.65(c) (TSCA)
	Analyze all samples for the following parameters: • PCBs • pH • Specific conductance • Chlorinated organics		

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Chemical Landfilling of PCBs (continued)	Install a leachate monitoring system.		40 CFR section 761.75(7) (TSCA)
	Place containers in landfill without damaging other containers.		40 CFR section 761.75(8) (TSCA)
	Segregate PCB wastes from wastes not chemically compatible with PCBs.		40 CFR section 761.75(8) (TSCA)
Marking of PCBs	The following must be marked as designated in 40 CFR section 761.45: • PCB containers containing greater than 50 ppm PCBs, PCB transformers, PCB Large High-Voltage Capacitors, equipment containing a PCB transformer or a PCB Large High-Voltage Capacitor, PCB Large Low-Voltage Capacitor at time of removal, electric motors using PCB coolants, hydraulic systems using PCB hydraulic fluid, heat transfer systems using PCBs, PCB article containers containing any of the above, storage areas used to store PCBs and PCB items for disposal.	PCB article described in 40 CFR section 761.45	40 CFR section 761.40 (TSCA)
	All marks must be on exterior of PCB container and must be clearly visible.		40 CFR section 761.40 (TSCA)
Disposal of Pesticides	Unacceptable disposal methods: • Those inconsistent with label • Open dumping • Open burning • Disposal into any body of water • Those inconsistent with applicable law.		Federal Insecticide Fungicide and Rodenticide Act (FIFRA) 40 CFR section 165.7
	Incinerate pesticide at a specified temperature/dwell time that will ensure that all emissions meet requirements of CAA relating to gaseous emissions.	Incineration (recommended) of organic pesticides, except organic mercury, lead, cadmium, and arsenic.	40 CFR section 165.8(a) (FIFRA)

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Disposal of Pesticides (continued)	Dispose of liquids, sludges, or solid residues generated by incineration in accordance with applicable Federal, State, and local pollution control requirements. If incineration facilities are not available, dispose of pesticides by: • Burial in a designated landfill • Chemical degradation and burial • Storage • Well injection, if all other alternatives are more harmful to the environment.		40 CFR section 165.8(a) (FIFRA)
	Chemically or physically treat pesticides to recover heavy metals then incinerate the pesticides in compliance with CAA. If appropriate treatment and incineration are not available, the pesticides may be: • Chemically degraded and buried • Stored • Injected into the ground only if there is no alternative offering more protection to the environment.	Incineration (recommended) of metallo-organic pesticides (except mercury, lead, cadmium, or arsenic compounds).	40 CFR section 165.8(b) (FIFRA)
	Chemically deactivate pesticide and recover the heavy metals. If chemical deactivation facilities are not available, encapsulate the pesticide and bury it. Store pesticide if neither deactivation nor burial are available.	Treatment recommended for organic mercury, lead, cadmium, arsenic, and all inorganic pesticides.	40 CFR section 165.8(c)

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 2 - TOXICS AND PESTICIDES			
Disposal of Pesticide Containers and Residue	Incinerate or bury in a designated landfill.	Combustible containers that formerly held organic or metallo-organic pesticides, except organic mercury, lead, arsenic, and cadmium.	40 CFR section 165.9(a) (FIFRA)
	Non-combustible containers must be: • Triple-rinsed. • Returned to the pesticide manufacturer for reuse if in good condition. • Returned to a facility for recycling as scrap metal if in poor condition.	Non-combustible containers that formerly held organic or metallo-organic pesticides (with exceptions noted above)	40 CFR section 165.9(b) (FIFRA)
	Triple puncture containers to facilitate drainage, and dispose of in a sanitary landfill.	Combustible and non-combustible containers that formerly held organic, mercury, lead, cadmium, or arsenic, or inorganic pesticides.	40 CFR section 165.9(c) (FIFRA)
Labeling of Pesticides	Label pesticides legibly, and prominently, to show: • Ingredients; • Warnings and precautionary statements; • Toxicity; • Directions for use, including storage and disposal methods.	Labeling requirements may apply when pesticides are considered products, and not RCRA hazardous wastes.	40 CFR section 162.10 (FIFRA)
Handling of Pesticides	Individuals handling certain pesticides must be State- or Federally-approved applicators.		40 CFR section 171.4 (FIFRA)

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT OR APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Discharge of Radioactive Pollutants to Air	Airborne emissions shall not cause members of the public to receive doses greater than: • 25 mrem/yr to the whole body; or • 75 mrem/yr to the critical organ. 1/	Applicable to airborne emissions from DOE, NRC-licensed, and non-DOE Federal facilities during their operational period. Not applicable to: doses caused by radon-220, radon-222, and their respective decay products; facilities regulated under 40 CFR Parts 190, 191, or 192; and low-energy accelerators and users of sealed radiation sources.	Clean Air Act (CAA) 40 CFR Part 61, Subparts H and I 2/
Discharge of Radioactive Pollutants to Surface Waters	Best Available Technology: The concentration of pollutants discharged in drainage from mines that produce uranium ore shall not exceed: • 10 pCi/l of dissolved radium-226 in any one day or 3 pCi/l of dissolved radium-226 averaged over 30 consecutive days; 3/ • 30 pCi/l of total radium-226 in any one day or 10 pCi/l of total radium-226 averaged over 30 consecutive days; and • 4 mg/l of uranium in any one day or 2 mg/l of uranium averaged over 30 consecutive days.	Applicable to discharges of radium-226 and uranium from open-pit or underground mines from which uranium, radium, and vanadium ores are produced, including mines that use in-situ leach methods. 4/	Clean Water Act (CWA) 40 CFR section 440.33
	Best Practicable Control Technology: The concentration of pollutants discharged in drainage from mines from which uranium, radium, and vanadium ores are produced shall not exceed the same concentration criteria noted above for the Best Available Technology.	Applicable to discharges of radium-226 and uranium from open-pit or underground mines from which uranium, radium, and vanadium ores are produced, excluding mines that use in-situ leach methods. 4/	40 CFR section 440.32(a) (CWA)

1/ A millirem (mrem) = 0.001 rem, where a rem is a measure of dose equivalence for the biological effect of radiation of different types and energies on people.

2/ Lead agencies are cautioned that the radionuclide NESHAPs are being reexamined subject to a voluntary remand and that they may be revised in the future.

3/ A curie, or Ci, is the amount of radioactive material that produces 37 billion nuclear disintegrations per second. A picocurie, or pCi, is equal to 1 x 10^{-12} curies.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Discharge of Radioactive Pollutants to Surface Waters (continued)	Best Practicable Control Technology: The concentration of pollutants discharged from mills shall not exceed the concentration criteria for radium-226 noted above for the Best Available Technology.	Applicable to mills using the acid leach, alkaline leach, or combined acid and alkaline leach process for the extraction of uranium, radium, and vanadium, including mill-mine facilities and mines using in-situ leach methods. 4/	40 CFR section 440.32(b) (CWA)
	New Source Performance Standards: The concentration of pollutants discharged in mine drainage from mines that produce uranium ore shall not exceed the same concentration criteria noted above for the Best Available Technology.	Applicable to discharges of radium-226 and uranium from open-pit or underground mines from which uranium, radium, and vanadium ores are produced, excluding mines using in-situ leach methods. 4/	40 CFR section 440.34(a) (CWA)
	There shall be no discharge of process wastewater to navigable waters.	Applicable to discharges of radium-226 and uranium from mills using the acid leach, alkaline leach, or combined acid and alkaline leach processes for the extraction of uranium and from mines and mills using in-situ leach methods. 4/	40 CFR section 440.34(b) (CWA)
Discharge of Radionuclides to Unrestricted Areas (Air and Water)	Airborne and liquid discharges to unrestricted areas shall meet radionuclide-specific concentration limits in 10 CFR Part 20, Appendix B, Table II. These concentrations are designed to limit radiation exposure to members of the public to 0.5 rem/year to the whole body, blood-forming organs, and gonads; 3 rems/year to the bone and thyroid; and 1.5 rems/year to other organs. 5/	Applicable to all categories of Nuclear Regulatory Commission (NRC) licensees; also applicable to Agreement State licensees. Applicable to releases of source, byproduct, and special nuclear material, as well as to naturally occurring and accelerator-produced radioactive material (NARM) released from facilities licensed to possess source, byproduct, and special nuclear material. 6/	Atomic Energy Act 7/ (AEA) 10 CFR section 20.106

4/ Applicable only to vanadium byproduct production from uranium ores.

5/ These dose limits are considered high relative to recent EPA standards (see discussion in Section 4.2.1.1 of Chapter 4 of Part II).

6/ Section 104(a)(3)(A) of CERCLA as amended by SARA prohibits response to releases "of a naturally occurring substance in its unaltered form or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found." NARM possessed and used by a nuclear material licensee, in almost all cases, would not qualify as a naturally occurring substance as it is defined in this section.

7/ These standards are potentially applicable only for CERCLA actions at sites licensed by the NRC, but may be relevant and appropriate to radioactively contaminated sites not licensed by the NRC.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Protection of Ground Water from Radioactive Contamination	Uranium mill tailings shall be managed so as to conform to the ground-water protection standard in 40 CFR section 264.92, except that for the purpose of this standard: • Molybdenum, uranium, and thorium are added to the list of hazardous constituents referenced in 40 CFR section 264.93; • Radioactivity concentration limits for radium and gross alpha particle activity are added to Table 1 of 40 CFR section 264.94; and [8] • Detection monitoring programs required under section 264.98 to establish the standards required under section 264.92 shall be completed within one year of promulgation. [9]	Applicable to active commercial uranium and thorium processing sites licensed by the NRC or States.	Uranium Mill Tailings Radiation Control Act (UMTRCA) 40 CFR section 192.32(a)(2) and 192.41
Corrective Action of Radioactively Contaminated Ground Water	If the ground-water standards established under 4C CFR section 192.329(a)(2) are exceeded at a licensed site, a corrective action program as specified in 40 CFR section 264.100 shall be put into operation as soon as is practicable, and in no event later than 18 months after a finding of exceedance. [9]	Applicable to active commercial and thorium processing sites licensed by the NRC or States.	40 CFR section 192.33 and 192.41 (UMTRCA)
Cleanup of Radioactively Contaminated Land	If the above-background concentration of radium-226 in land averaged over any area of 100 m^2 is: • <5 pCi/g, no further cleanup is needed; • Between 5 and 15 pCi/g, a decision concerning the need for further cleanup should be made based on the volume and depth of the contamination, as well as other site-specific characteristics (further guidance from EPA's ORP should be sought in these cases); or • >15 pCi/g, the contamination should be removed.	Applicable to certain inactive uranium processing sites designated for remedial action under Title I of UMTRCA (see Chapter 4 of Part II for more detail), as well as active commercial uranium and thorium processing sites licensed by the NRC or States.	40 CFR section 192.12(a), 192.32(b)(2), and 192.41 (UMTRCA)

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[8] Gross alpha particle radioactivity means the total radioactivity due to all alpha particle emitters, excluding (for the purpose of 40 CFR section 141.15) radon and uranium.

[9] Refer to Chapter 2 of Part I of this guide for guidance on CERCLA compliance with RCRA.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Cleanup of Radioactively Contaminated Buildings	Remedial actions should attempt to achieve an annual average radon decay product concentration (including background) of less than 0.02 WL in any occupied or habitable building. In any case, the radon decay product concentration shall not exceed 0.03 WL. [10]	Applicable to certain inactive uranium processing sites designated for remedial action under Title I of UMTRCA (see Chapter 4 of Part II for more detail).	40 CFR section 192.12(b)(1) (UMTRCA)
	The level of gamma radiation shall not exceed the background level by more than 20 microroentgens/hour in any occupied or habitable building. [11]		40 CFR section 192.12(b)(2) (UMTRCA)
Control of Uranium or Thorium Mill Tailings	Control measures shall be designed to be effective for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.	Applicable to certain inactive uranium processing sites designated for remedial action under Title I of UMTRCA (see Chapter 4 for more detail).	40 CFR section 192.02(a) (UMTRCA)
	Control measures shall be designed to ensure that releases of radon-222 from residual radioactive material to the atmosphere will not exceed an average (applied over the entire surface of the disposal site and over at least a one-year period) release rate of 20 $pCi/m^2/sec$ or increase the average annual concentration of radon-222 in the atmosphere at or above any location outside the disposal site by more than 0.5 pCi/1.		40 CFR section 192.02(b) (UMTRCA).
	At the end of the closure period, disposal areas shall be designed to be effective for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.	Applicable to active commercial uranium and thorium processing sites licensed by the NRC or States.	40 CFR section 192.32(b)(1)(i), and 192.41 (UMTRCA).
	At the end of the closure period, disposal areas shall be designed to ensure that releases of radon-222 from residual radioactive material to the atmosphere will not exceed an average (applied over the entire surface of the disposal site and over at least a one-year period) release rate of 20 $pCi/m^2/sec$.		40 CFR section 192.32(b)(1)(ii) and 192.41 (UMTRCA).

10/ A working level, or WL, means any combination of short-lived radon decay products (through polonium-214) in one liter of air that will result in the emission of alpha particles with a total energy of 130 billion electron volts. An activity concentration of 10 picocuries per liter of radon-222 in equilibrium with its daughters corresponds approximately to one WL.

11/ A microroentgen = 1×10^{-6} roentgen, where a roentgen is a unit of exposure to gamma or X-rays, equivalent to an absorbed dose in tissue of approximately 0.9 rad. A rad is a measure of the energy imparted to matter by ionizing radiation, defined as 100 ergs/g.

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Closure of Uranium and Thorium Mill Tailings Sites	At the end of the closure period, disposal areas shall each comply with the closure performance standard in 40 CFR section 261.111 with respect to non-radiological hazards (see Exhibit 1-3 in Part I for more discussion on 261.111).[12]	Applicable to active commercial and thorium processing sites licensed by the NRC or States.	40 CFR section 192.32(b) and 192.41 (UMTRCA)
Radioactive Waste Treatment and Disposal	A variety of waste disposal requirements are set, including those specifying how licensees may dispose of licensed material (see Section 4.2.1.1 of Chapter 4 of Part II), as well as concentration limits for disposal of radioactive waste into sanitary sewerage systems, requirements for treatment and disposal by incineration, and specific requirements for the disposal of radioactively contaminated animal tissue and liquid scintillation media.	Applicable to all categories of NRC licensees; also applicable to Agreement State licensees. Applicable to releases of source, byproduct, and special nuclear material.	10 CFR sections 20.301 through 20.311 (AEA)
		Certain requirements also apply to other radioactive materials, i.e., NARM released from facilities licensed to possess source, byproduct, and special nuclear material.	10 CFR sections 20.302(a) and 20.302(b) (AEA)
Closure and Post-closure Observation and Maintenance of a Low-Level Radioactive Waste Disposal Site	Closure designs must assure that long-term performance objectives of 10 CFR sections 61.41-61.44 (see below) are met, taking into account site-specific geologic, hydrologic, and other conditions.	Applicable to NRC-licensed land disposal facilities that receive low-level wastes from others (i.e., commercial disposal facilities).	10 CFR section 61.28 (AEA, LLWPA, and LLRWPAA) [13]
	Following completion of closure, the disposal site must be monitored and maintained for 5 years (longer or shorter periods may be allowed) and then responsibility is transferred to a Federal or State government agency, which will implement institutional care requirements in 10 CFR section 61.23(g).	Not applicable to disposal of: • High-level waste and spent fuel (addressed in 10 CFR Part 60 and 40 CFR Part 191); • Transuranic waste (addressed in 40 CFR Part 191); • Uranium and thorium mill tailings (addressed in 10 CFR Part 40 and 40 CFR Part 192); and • Radioactive waste by an individual licensee, as provided for in 10 CFR Part 20.	10 CFR sections 61.29 and 61.30 (AEA, LLWPA, and LLRWPAA)

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[12] Refer to Chapter 2 of Part I of this guide for guidance on CERCLA compliance with RCRA.

[13] Part 61 was promulgated primarily under the authority of the Atomic Energy Act, but two other statutes from which authority was derived are the Low-Level Waste Policy Act of 1980 (LLWPA) and the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA).

EXHIBIT 1-3 (Continued)

SELECTED ACTION-SPECIFIC POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action	Requirements	Prerequisites for Applicability	Citation
CHAPTER 4 - MANAGEMENT OF RADIOACTIVE WASTES			
Siting, Designing, Operation, Closure, and Control of a Low-Level Radioactive Waste Disposal Site	A variety of performance objectives are established, including standards that set limits on radiation exposures by members of the public, protect people from inadvertently intruding onto a radioactive waste site, and stabilize the site after closure. The public exposure limits are the same dose limits as in 40 CFR Part 190.	Same prerequisites as specified above for 10 CFR Part 61.	10 CFR sections 61.41 through 61.44 (Subpart C of Part 61) (AEA, LLWPA, and LLRWPAA)
	A variety of technical requirements are established, i.e., minimum characteristics a disposal site must have to be acceptable.	Same prerequisites as specified above for 10 CFR Part 61, except that existing technical requirements are applicable only to the near-surface disposal of radioactive waste. A near surface disposal facility is defined as one that disposes of waste in or within the upper 30 meters of the earth's crust.	10 CFR sections 61.50 through 61.59 (Subpart D of Part 61) (AEA, LLWPA, and LLRWPAA)
Siting, Operation, Decontamination, Decommissioning, and Reclamation of Uranium Mills and Mill Tailings	Numerous technical, financial, ownership, and long-term surveillance criteria are established.	Applicable to active uranium or thorium mills and inactive mills that are not covered under the remedial action program of UMTRCA'S Title I (see Chapter 4 of Part II for more discussion on this remedial action program).	10 CFR Part 40, Appendix A (AEA and UMTRCA)

CHAPTER 2

CLEAN AIR ACT REQUIREMENTS AND RELATED RCRA AND STATE REQUIREMENTS

2.0 SOURCES OF AIR EMISSIONS AT UNCONTROLLED HAZARDOUS WASTE SITES

Air pollution problems at uncontrolled hazardous waste sites are usually the result of emissions of gas or particulate matter (e.g., dust).[1] Such emissions may be released through a stack, chimney, vent, or other functionally equivalent opening. Emissions that do not pass through such openings are considered to be "fugitive" emissions.

Gaseous emissions from uncontrolled hazardous waste sites may be due to the vaporization of liquids, thermal destruction of organics, venting of entrained gases, or chemical and biological reactions with solid and liquid waste material. Volatile organic compounds (VOCs) may be released slowly but continuously from surface impoundments or landfills. Methods for controlling the release of gaseous emissions into the atmosphere include placement of covers, to control volatile emissions from impoundments, and the use of active gas collection systems, to collect and control gases generated in landfills.

Emissions of particulate matter at uncontrolled hazardous waste sites are likely to be caused by incineration or by sources of fugitive dust emissions, such as wind erosion of exposed waste materials or cover soil. Commonly used measures for controlling fugitive dust emissions from inactive waste piles and from active cleanup sites include use of chemical dust suppressants, wind screens, water spraying, and other dust control measures commonly used during construction.

The following activities, commonly performed during a CERCLA cleanup action, may be sources of air emissions:

- Air stripping (used to volatilize contamination both in ground water and in soil);[2]
- Thermal destruction (e.g., incineration), which may produce emissions through volatilization of organic contaminants and through volatilization or suspension of particulate matter into the stack gases;
- Handling of contaminated soil, including loading, unloading, compaction of material in a landfill, and transfer operations (e.g., digging and relocating of

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[1] Uncontrolled hazardous waste sites include some sites where Superfund actions are already underway.

[2] EPA has developed a policy for control of emissions from air stripper operations at CERCLA sites, entitled Control of Air Emissions from Superfund Air Strippers at Superfund Groundwater Sites, June 15, 1989 (OSWER Directive 9355.0-28).

soil) can lead to volatilization of organic contaminants and wind entrainment of particulates;

- Gaseous waste treatment (e.g., flaring used, for example, when capping and venting a site, usually abandoned or inactive landfills); and
- Biodegradation, especially when aeration of liquids is involved.

Many of the sources of gaseous and particulate matter emissions may be subject to Federal or State regulations. In addition, control devices and some cleanup activities that increase the amount of emissions, or change the type, e.g., flares, air strippers, or excavation, may be considered sources subject to air emission requirements contained in the CAA or RCRA.[3] The remainder of this chapter discusses the ARARs related to air emissions that may be triggered by remedial activities at CERCLA sites. The CAA, RCRA, and State requirements are discussed in turn.

2.1 THE CLEAN AIR ACT

The objective of the CAA is to protect and enhance the quality of the nation's air resources in order to promote and maintain public health and welfare and the productive capacity of the population. The CAA achieves this objective by regulating emissions into the air. Controls on stationary and mobile sources of emissions are implemented through combined Federal, State, and local programs. Pursuant to the CAA, EPA has promulgated National Ambient Air Quality Standards, National Emission Standards for Hazardous Air Pollutants, and New Source Performance Standards, any of which may apply to the source, depending on the pollutant involved. These potential ARARs are described in detail below.

- National Ambient Air Quality Standards for Criteria Pollutants

Pursuant to the CAA §109, EPA promulgates national ambient air quality standards (NAAQS) (see 40 CFR Part 50 and Exhibit 2-1). The attainment and maintenance of these primary and secondary standards are required to protect the public health (allowing an adequate margin of safety) and the public welfare, respectively. EPA has promulgated NAAQS for the following six pollutants (called "criteria pollutants"): particulate matter equal to or less than 10 microns particle size (PM_{10}), sulfur dioxide, carbon monoxide, ozone (which results from the photochemical oxidation of VOCs), nitrogen

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[3] Many remedial technologies, such as air strippers, soil gas evacuation systems, methane flares, in situ vitrification systems, and ion exchange resin systems have radioactive byproducts. These systems often remove and emit naturally occurring radioactive materials, such as radon-220 and radon-222, as well as the chemical contaminants, especially in some geological locations with high concentrations of radioactive materials. See Chapter 5 of Part II for potential ARARs for radioactive materials.

EXHIBIT 2-1

NATIONAL AMBIENT AIR QUALITY STANDARDS[a]
(NAAQS)

Criteria Pollutant	Primary Standards	Averaging Time	Secondary Standards
Carbon Monoxide	9 ppm	8-hour[b]	None
	35 ppm	1-hour[b]	
Lead	1.5 $\mu g/m^3$	Quarterly average	Same as primary
Nitrogen dioxide	0.053 ppm	Annual (arithmetic mean)	Same as primary
Particulate Matter (PM_{10})	50 $\mu g/m^3$	Annual (arithmetic mean)[c]	Same as primary
	150 $\mu g/m^3$	24-hour[d]	
Ozone	0.12 ppm	1-hour[e]	Same as primary
Sulfur oxides	0.03 ppm	Annual (arithmetic mean)	---
	0.14 ppm	24-hour[b]	---
	---	3-hour[b]	0.5 ppm

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[a] States translate these ambient standards into source-specific emission limitations in State Implementation Plans.

[b] Not to be exceeded more than once per year.

[c] The standard is attained where the expected annual arithmetic mean concentration, as determined in accordance with Appendix K (52 FR 24667, July 1, 1987), is less than or equal to 50 $\mu g/m^3$.

[d] The standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1.

[e] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is equal to or less than 1.

dioxide, and lead. Primary standards are set at levels to protect public health. Secondary standards are set at levels to protect public welfare, which includes wildlife, climate, recreation, transportation, and economic values.

- National Emission Standards for Hazardous Air Pollutants

Pursuant to the CAA §112, EPA identifies pollutants for which no ambient air quality standard exists but that cause or contribute to air pollution that may reasonably be anticipated to result in an increase in mortality or in serious irreversible, or incapacitating reversible, illness. EPA first "lists" a pollutant as hazardous and then establishes emissions standards for source types (i.e., industrial categories) that emit that pollutant, known as national emissions standards for hazardous air pollutants (NESHAPs). NESHAPs have been promulgated for specific source types emitting the following pollutants: arsenic, asbestos, benzene, beryllium, mercury, radionuclides, and vinyl chloride (see 40 CFR Part 61 and Exhibit 2-2). Coke oven emissions have also been listed as a hazardous air pollutant but a NESHAP for such emissions has not yet been finalized.

- New Source Performance Standards for Criteria and Designated Pollutants

Under the CAA §111, EPA promulgates new source performance standards (NSPS) for certain classes of new stationary sources (e.g., industrial categories) of air pollution (listed at 40 CFR Part 60). Section 111(d) of the CAA, however, requires that, for designated pollutants, States must regulate existing sources.[4] The NSPS limit the emissions of a number of different pollutants, including the six criteria pollutants and the following three designated pollutants: fluorides, sulfuric acid mist, and total reduced sulfur (including H_2S).

2.1.1 National Ambient Air Quality Standards (NAAQS)

The primary and secondary standards for criteria pollutants (i.e., NAAQS) are identified at 40 CFR Part 50 (see Exhibit 2-1). The NAAQS for some criteria pollutants can include both short-term and long-term averaging times (e.g., 3-hour, 24-hour, and annual standards for sulfur oxides). These standards do not apply directly to source-specific emissions limitations; rather, they are national limitations on ambient concentrations intended to protect health and welfare.

Under the CAA §107, each State has the primary responsibility for assuring that NAAQS are attained and maintained. Section 110 requires each State to adopt and submit to EPA for approval a plan for the implementation, maintenance, and enforcement of the NAAQS. EPA approves a State Implementation Plan (SIP) or portion thereof when it meets the requirements of the CAA §110(a)(2). Upon EPA

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[4] Pollutants that are regulated under NSPS, and for which EPA has promulgated neither NAAQS or NESHAPs, are referred to as designated pollutants.

EXHIBIT 2-2

HAZARDOUS AIR POLLUTANTS: SOURCES AND STANDARDS[a] (NESHAPs)

Hazardous Pollutants	Sources	Standards
Mercury	Mercury smelters, chloroalkali plants	2,300 g/day
	Sewage sludge incinerators/dryers	3,200 g/day
Asbestos	Asbestos mills	No visible emissions
	Roadways	No surfacing with asbestos
	Manufacturing	No visible emissions
	Demolition	Notification, wet and remove friable asbestos
	Spraying	Limitations on concentrations of asbestos, no visible emissions
	Fabricating	No visible emissions
	Insulation	No asbestos
	Mill waste disposal	No visible emissions
	Waste disposal--manufacturing, demolition/renovation, spraying, fabricating	No visible emissions
	Inactive waste disposal sites for mills, manufacturing, fabricating	No visible emissions, design/work practice standards
	Active waste disposal sites	No visible emissions, design/work practice standards
Beryllium	Extraction plants, ceramic plants, foundries, incinerators, rocket propellant plants, machine shops	10 g/day or 0.01 $\mu g/m^3$ ambient concentration (with 3 years of monitoring data)
	Rocket motor test sites, collection of combustion products	2 g/hr, maximum 10g/day
Vinyl chloride	Ethylene dichloride plants	10 ppm, equipment standards, work practice standards
	Vinyl chloride plants	10 ppm
	Vinyl chloride polymer plants	10 ppm

EXHIBIT 2-2 (Continued)

HAZARDOUS AIR POLLUTANTS: SOURCES AND STANDARDS[a] (NESHAPs)

Hazardous Pollutants	Sources	Standards
Benzene[b]	Fugitive leaks from equipment containing ≥10% benzene	No detectable emissions (approx. 500 ppm.)
Arsenic[b]	Glass manufacturing	Existing: 2.5 Mg/year or 85% control New: 0.4 Mg/year or 85% control
	Primary copper	11.6 mg/m^3 particulate matter
	Arsenic trioxide and metallic arsenic production	Inspection, maintenance, and housekeeping
Radionuclides[b]	DOE facilities	25 mrem/year (whole body)[c] 75 mrem/year (any organ)
	NRC facilities	25 mrem/year (whole body) 75 mrem/year (any organ)
	Elemental phosphorus	21 Ci/year[d]
Radon 222	Uranium mines	Design and operation
	Uranium mill tailings	Design and operation
Coke oven emissions	Coke ovens (proposed 4/23/87)	Visible emissions and operating and maintenance requirements

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[a] 40 CFR Part 61

[b] The NESHAPs for arsenic, benzene, and radionuclides are being reexamined and may be revised as a result of a July 1987 court ruling on vinyl chloride NESHAPs. The court required EPA to first consider only human health in determining a safe level of risk, and only then consider costs and technical feasibility in establishing an ample margin of safety.

[c] mrem - millirem

[d] Ci - curie

approval, the SIP becomes Federally enforceable. Thus, State requirements can become Federal requirements by means of the SIP approval process.

As discussed in the section below, only "major sources" are subject to requirements related to attainment of NAAQS. In general, emissions from CERCLA activities are not expected to qualify as "major."

Of course, in addition to NAAQS, the States may also adopt more stringent standards or standards with additional averaging times (including more stringent definitions of "major sources"). Both State requirements approved through the SIP process and more stringent State standards issued under State law are potential ARARs for Superfund sites. Moreover, States may delegate authority to Regional or local air programs for SIP requirements. Any Regional or local air program requirements that are a part of a SIP under the CAA are considered potential ARARs.[5]

2.1.1.1 Pre-Construction Review

In general, new and modified stationary sources of air emissions must undergo a pre-construction review. Pre-construction reviews are conducted by EPA, the State, or the local air pollution control agency (40 CFR sections 51.160 through 51.164) to determine whether the construction or modification of any stationary source will interfere with attainment or maintenance of NAAQS or will fail to meet other new source review requirements, including NESHAPs and NSPS, which would result in a denial of a permit to construct. The scope and extent of the review, including the extent and types of pollution control required and possible exemptions for *de minimis* (i.e., low level) emissions, varies according to Federal or State requirements. Examples of pollution controls that may be required for CERCLA activities include vapor recovery on air strippers, controls on emissions of particulates from incinerators, and controls on sources of fugitive particulate emissions. SIPs may require some version of best available control technology (BACT) on particular types of emission in attainment/unclassified areas, Lowest Achievable Emission Rates (LAER), or emission offsets in non-attainment areas, (see Prevention of Significant Deterioration and non-attainment sections in Appendix A).

Although CERCLA §121(e) exempts facility owners/operators from having to obtain permits for on-site remedial activities, the substantive requirements and conditions that would otherwise be included in the permit must be met. It is the responsibility of the RPM, through the Superfund process, to identify and to comply with these requirements (see Section 2.4 below for suggestions regarding how EPA's Superfund and Air offices can work together to determine these requirements).

The permitting process related to attainment of NAAQS applies only to "major" sources of air emissions. Thus, requirements related to attainment of NAAQS are ARARs only when the remedial activity at a CERCLA site is a major source of emissions, considering the aggregate of all source emissions at the site. Generally, it is not anticipated that emissions from CERCLA activities would qualify as "major." (The definition of "major source" differs for attainment and non-attainment areas. See discussion below and Appendix A for EPA definitions of major sources under the CAA.) For major sources, different requirements will be triggered depending on whether the new modified stationary source is located in an attainment or non-attainment area. Attainment and non-attainment areas are designated in 40 CFR Part 81.

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[5] Local regulatory agencies' rules are not always a part of the State's SIP. Under these circumstances, such rules are not potential ARARs but should be considered in developing a protective remedy.

2.1.1.2 Attainment Areas

The Prevention of Significant Deterioration (PSD) requirements for attainment areas apply to new major stationary sources and major modifications in areas designated as being in attainment of the NAAQS for criteria pollutants. The PSD requirements for attainment areas also apply in areas where no data exist and the area is defined as unclassified. Regions throughout the country are designated as attainment or non-attainment areas for each of the criteria pollutants. Part C of the CAA requires SIPs to contain "adequate provisions" for the prevention of significant deterioration (the PSD program) of air quality in an attainment (or unclassified) area, i.e., a "clean" area whose air quality is better than that required by the NAAQS. In general, the purpose of the PSD program is to ensure that air quality in attainment areas does not significantly deteriorate, while a margin for future industrial growth is maintained. PSD areas do not necessarily have the same boundaries as air quality control regions.

"Major" new sources or "major" modifications to existing sources must meet PSD requirements and obtain PSD permits before beginning construction. Pursuant to §121(e), a CERCLA response action taking place entirely on site is exempt from the requirement to obtain a permit. However, the action must comply with all substantive requirements of a PSD review.

Under the PSD program, a CERCLA site would not be considered a major source unless it was expected to emit 250 tons or more per year of any regulated pollutant (or the site contains certain specific types of facilities, such as an incinerator or a chemical processing plant, for which the threshold is 100 tons per year). SIP or other State requirements may have different ton per year thresholds for applying PSD requirements. PSD regulations require that the source install and operate the BACT for certain pollutants. The regulations also ensure that the source will not cause or contribute to violations of the NAAQS or PSD increments for sulfur dioxide, nitrogen dioxides, and particulates; will not impair visibility or adversely impact soils or vegetation; and will not cause adverse impacts on the air quality-related values of certain wilderness areas and national parks.[6]

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[6] Increments refers to the maximum allowable increase of the pollutant in an attainment area. More detail on the potential applicability of PSD requirements is provided in Appendix A.

2.1.1.3 Non-Attainment Areas

An area may be designated non-attainment for any of the NAAQS. Non-attainment area permits are issued under State or local jurisdiction. A CERCLA site would not be considered a major source unless its emissions equalled or exceeded 100 tons or more per year of the pollutant for which the area is designated non-attainment. (SIP or other State requirements may have different thresholds.) Sources emitting a non-attainment pollutant must meet the lowest achievable emission rate (LAER). In addition, the SIP must contain a growth allowance or the source must provide an emissions offset (i.e., offset the quantity of the source's emissions by reducing emissions of the non-attainment pollutant emanating from one of its own operations or from an unrelated source). The program also provides that a permit may not be issued unless all other sources owned or operated by the permit applicant in the State are in compliance with the SIP. A given area can be designated an attainment area for one of the criteria pollutants and a non-attainment area for different criteria pollutant.

2.1.2 National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

Section 112 of the CAA directs EPA to publish, and periodically to revise, a list of hazardous air pollutants for which it intends to establish emission standards, and to establish emission standards for those pollutants. Hazardous air pollutants are those for which no ambient air quality standard exists, but which cause, or contribute to, air pollution that may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness. The statute directs EPA to establish standards at the level that provides an ample margin of safety to protect the public health from such hazardous air pollutants. The standards are referred to as national emissions standards for hazardous air pollutants (NESHAPs), listed in 40 CFR Part 61 (see Exhibit 2-2).

NESHAPs, like NSPS, are promulgated for emissions of particular air pollutants from specific sources (e.g., inorganic arsenic emissions from glass manufacturing plants). NESHAPs are not generally applicable to Superfund remedial activities because CERCLA sites do not usually contain one of the specific source categories regulated. Moreover, NESHAPs as a whole are generally not relevant and appropriate because the standards of control are intended for the specific type of source regulated and not all sources of that pollutant. Possible exceptions to this are the asbestos and radionuclide NESHAPs, which are discussed in the next two sections. However, part of a NESHAP may be relevant and appropriate to a CERCLA site. For example, the vinyl chloride NESHAP, which applies to vinyl chloride and polyvinyl chloride manufacturing plants, sets an emissions level for strippers. This portion of the NESHAP would only be applicable to a CERCLA air stripper if the stripper fell into the category of a manufacturing plant. This same standard may be relevant and appropriate, however, for any CERCLA air stripper producing vinyl chloride emissions.

2.1.2.1 Asbestos NESHAPs

The NESHAPs for asbestos may, in some circumstances, be ARARs for the cleanup of certain kinds of asbestos waste. Subpart M of 40 CFR Part 61 establishes standards for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations (40 CFR section 61.153), for active waste disposal sites (40 CFR section 61.156), and for disposal of asbestos-containing waste from demolition and renovation operations (40 CFR section 61.152). Although not applicable to CERCLA sites, requirements in these sections may be relevant and appropriate to Superfund cleanup activities when they are sufficiently similar to the site situation and appropriate to the circumstances of the release.

The asbestos NESHAPs also list acceptable procedures for asbestos emissions control for demolition of buildings or equipment containing friable asbestos material (40 CFR section 61.147). These requirements may be ARARs if the Superfund cleanup were to involve, for example, demolition of an abandoned building containing asbestos.

2.1.2.2 Radionuclide NESHAPs

The radionuclide NESHAPs are presented in five different subparts of Part 61, with each subpart addressing a different source category as shown below:[7]

- Subpart B applies to active underground uranium mines;
- Subpart H applies to certain facilities owned or operated by DOE;
- Subpart I applies to certain NRC-licensed facilities (including Agreement State licensees) and facilities owned or operated by any Federal agency other than DOE;
- Subpart K applies to calciners and nodulizing kilns at elemental phosphorus plants; and
- Subpart W applies to NRC-licensed uranium mill tailings sites during their operational period.

Subparts H and I limit radiation doses that can be received by members of the general public as a result of airborne emissions from DOE facilities and NRC-licensed/non-DOE Federal facilities, respectively. Exhibit 1-1 and Chapter 5 of Part II of this guidance manual discuss the specific radiation dose limits and their prerequisites for applicability. The requirements in Subparts H and I would be applicable to airborne emissions of radionuclides during the cleanup of sites at DOE facilities, NRC-licensed facilities, and non-DOE Federal (e.g., DOD) facilities. It is important to clarify, however, that these subparts would not be applicable or relevant and appropriate for airborne emissions from residual contamination after cleanup, when the facility is no longer in operation (the standards were developed to limit radiation doses caused by operations that yield a beneficial product).

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[7] Lead agencies are cautioned that the existing radionuclide NESHAPs, as well as other NESHAPs, may change in form or substance as a result of a voluntary remand to be consistent with the July 1987 vinyl chloride ruling. The Agency will revise NESHAPs only to consider human health when setting a "safe" or "acceptable" level of risk and account for the costs and technological feasibility only when determining the margin of safety.

Subparts B and W do not establish radionuclide emission standards, but rather establish work practices to limit emissions of radon-222. For example, Subpart B requires an owner or operator of an active underground uranium mine to install and maintain bulkheads (air restraining barriers) to control radon from abandoned and temporarily abandoned areas of the mine. Subpart W requires phased or continuous disposal for all new tailings impoundments at licensed uranium mill sites during their operational period. Neither of these subparts would apply to CERCLA responses. The subparts, however, may be relevant and appropriate if the CERCLA response occurs at an underground uranium mine or at a uranium mill site.

Finally, Subpart K applies only to emissions of polonium-210 from calciners and nodulizing kilns at elemental phosphorus plants. Because such emissions are not likely to occur during a CERCLA response action, Subpart K is not likely to be applicable to CERCLA responses and probably would not even be relevant and appropriate.

2.1.3 New Source Performance Standards (NSPS)

Section 111 of the CAA requires EPA to promulgate standards for new sources of air emissions. The purpose is to ensure that new stationary sources are designed, built, equipped, operated, and maintained to reduce emissions to a minimum. The CAA requires EPA to promulgate standards for categories of stationary sources that emit particular pollutants that cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare.[8] The emissions control technology on which the New Source Performance Standards (NSPS) are based is the best demonstrated technology (BDT). BDT is the degree of emission limitation achievable through application of the best technological systems of continuous emission reduction that (taking into consideration the cost of achieving such emission reduction, any non-air-quality health and environmental impacts, and energy requirements) EPA determines by regulation has been adequately demonstrated.

Since NSPS are source-specific requirements, they are not generally considered applicable to Superfund cleanup actions. However, an NSPS may be applicable if the facility at the Superfund site is a new source subject to an NSPS (e.g., an incinerator), or an NSPS may be considered relevant and appropriate if the pollutant emitted and the technology employed during the cleanup action are sufficiently similar to the pollutant and source category regulated by an NSPS that they are well-suited to the circumstances of the release at the CERCLA site. For example, there is an NSPS for particulate emissions from incinerators with a charging rate of 50 tons/day that are used for burning solid waste, more than 50 percent of which is municipal type waste (40 CFR section 60.50). If a cleanup action will involve the use of an incinerator at a municipal landfill, this NSPS should be evaluated to determine if it is an ARAR (see Part I, Chapter 1 for the methodology for determining ARARs).

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[8] Many States have the authority to enforce both NSPS and NESHAPs.

2.2 AIR EMISSION REGULATIONS UNDER RCRA

Existing RCRA regulations covering hazardous waste air emissions are limited to controls on incinerators and requirements for controlling windblown fugitive particulate matter from landfills, waste piles, and land treatment facilities. However, a number of forthcoming RCRA regulations will address air emissions from hazardous waste treatment, storage, and disposal facilities (TSDFs) in a more comprehensive manner. Both existing and forthcoming regulations are described below.

2.2.1 Incinerators

Existing RCRA regulations for hazardous waste incinerators (40 CFR Part 264, Subpart O) set standards for destruction and removal efficiency, hydrogen chloride emissions, and particulate emissions. Forthcoming revisions will add limits on metals emissions and products of incomplete combustion, and will revise the standard for hydrogen chloride emissions. These revisions are expected to be proposed late in 1989, with promulgation expected to occur one year later.

2.2.2 Land Disposal Facilities

Existing RCRA air regulations for hazardous waste piles, land treatment, and landfills are limited to the requirement that particulate matter from such facilities be controlled by covers or other means (40 CFR sections 264.251, 264.273, and 264.301).

2.2.3 Other Treatment, Storage, and Disposal Facilities (TSDFs)

Regulations governing organic air emissions from treatment, storage, and disposal facilities (TSDFs) other than incinerators and land disposal units will be promulgated under 40 CFR Part 269. These regulations will include air emission standards for process vents and equipment leaks, which were proposed on February 5, 1987 (52 FR 3748), and air emission standards for container storage, tanks, surface impoundments, and waste fixation units (to be proposed in 1989). The regulations are expected to include requirements for the installation, operation, and maintenance of control equipment, including leak detection and repair, as well as requirements related to the installation of control equipment for process vents on air strippers, which are likely to be frequently used in Superfund operations.

When promulgated, these requirements will be potentially applicable or relevant and appropriate requirements. The proposed standards are not potential ARARs, but may be considered in developing a protective remedy for a Superfund site.

2.3 STATE AIR TOXIC PROGRAMS

A number of State air pollution control agencies have adopted, or are in the process of establishing, programs to regulate what are generally referred to as "toxic air pollutants." Requirements under these programs are likely to be the most significant ARARs for Superfund activities. These programs differ from State to State in terms of the pollutants and sources regulated and the safe levels adopted.[9] An RPM must coordinate with the appropriate State agency and with the Regional Air/Superfund Coordinator to identify these potential State ARARs.

Many States control toxic air pollutants through the imposition of technology-based standards and then determine whether residual emissions exceed State standards. Other States control toxic air pollutants by comparing emissions with acceptable ambient concentrations; that is, the concentration of the toxic pollutant is estimated, by modeling, at a receptor, usually at the fenceline of the source, and compared with the "acceptable limit." The definition of an "acceptable limit" varies a good deal from State to State. Many States establish acceptable limits by applying a correction factor to occupational standards, i.e., threshold limit values (TLV). These correction factors vary from 1/10 to 1/420.

Other States regulate carcinogens using risk assessment principles. For example, a State law may require that the risk to the most exposed individual in any population exposed to a carcinogen (for an assumed 70-year lifetime) cannot exceed 1×10^{-5} excess cancer risk.

A typical State air toxics program will require a source to do the following:

- Identify pollutants of concern by comparing anticipated emissions with the State air toxics list;
- Estimate emissions of toxic air pollutants using procedures approved by the State;
- Estimate off-site concentrations, normally by air quality modeling procedures approved by EPA or the State;

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[9] Except where NESHAPs have been adopted, there are no Federal or CAA-related requirements on the State control of toxic air pollutants. EPA's role is currently to provide information, for example, through the National Air Toxics Information Clearinghouse (NATICH), the Air Toxics Control Technology Center (the CTC Hotline number is (919) 541-0800), and the Air Risk Information Support Center (the Air Risk Hotline number is (919) 541-0888). NATICH is a computerized data base that contains information from Federal, State, and local agencies, as well as research information from EPA and other organizations. The information in NATICH is organized according to agency, pollutant, and emissions source. For more information, contact the Pollutant Assessment Branch, Research Triangle Park, North Carolina, at (919) 541-0850.

- Compare off-site concentrations to permissible State levels; and

- Require additional controls (beyond what would otherwise be required) if a new source is likely to exceed the State limits.

2.4 COORDINATION BETWEEN CERCLA AND AIR PROGRAM OFFICES FOR REMEDIAL ACTIVITIES CONDUCTED ON SITE

Remedial Project Managers are responsible for identifying and complying with ARARs when proposed remedial actions could result in air emissions. In order to do so correctly and in a timely manner, each EPA Region should establish procedures, protocols, or memoranda of understanding that, while not recreating the administrative and procedural aspects of a permit, ensure early and continuous cooperation and coordination between the Regional Superfund and Air Program offices. An Air/Superfund coordinator from the Air Program office has been designated in each Region to facilitate cooperation and coordination between the Superfund and Air Program offices. Moreover, State Superfund and State Air Program offices may be involved where there is a State-lead action or where the State has been delegated new source air permitting authority. Coordination among all appropriate program offices should be established to ensure early involvement and identification of information requirements for expeditious remediation of particular sites. The Regional Superfund and Air Program offices should maintain their involvement in all actions.

It is expected that most remedial air field studies and engineering assessments will be performed by Superfund contractors under the direction of the RPM in coordination with the appropriate Regional and State Air Programs. The Air Program offices' experience in applying standards of control under the CAA to industrial new sources is a valuable resource for Superfund. Air Program offices can help ensure that Superfund site decisions involving air pollution issues are consistent with Air Program ARARs. The Air Program offices can also review and comment on Superfund work plans, site investigations, and cleanup studies, and can also be called upon to perform special site field evaluations during removal and pre-remedial actions. Air Program offices may also play a critical role in the selection of methodologies and assumptions for risk assessment. In some special circumstances, Air Program staff may provide assistance to Superfund contractors by consulting in areas such as air modelling, monitoring, and the use and effectiveness of air pollution control devices. Superfund staff should consult with their Air Program counterparts early in the planning process to facilitate this cooperative effort.

Another source of information regarding control technologies is the Control Technology Center in Research Triangle Park, North Carolina (Hotline numbers: (919) 541-0800 and (FTS) 629-0800). The Control Technology Center can provide information regarding types of technologies (e.g., BACT and LAER) that have been used previously to control various kinds of emissions.

CHAPTER 3

STANDARDS FOR TOXICS AND PESTICIDES

3.0 TOXIC SUBSTANCES CONTROL ACT

This chapter addresses CERCLA compliance with requirements under the Toxic Substances Control Act (TSCA). TSCA authorizes EPA to establish regulations pertaining to the testing of chemical substances and mixtures, premanufacture notification for new chemical substances or significant new uses of existing substances, control of chemical substances or mixtures that pose an imminent hazard, and recordkeeping and reporting requirements. Of these, the regulations controlling hazardous chemicals are potential ARARs for CERCLA actions. Pursuant to TSCA §6, EPA has published regulations pertaining to polychlorinated biphenyls (PCBs), fully halogenated chlorofluoroalkanes (prohibited for aerosol propellant uses subject to TSCA), and asbestos (40 CFR Parts 761, 762, and 763, respectively). Requirements for PCBs will be discussed in this chapter. Asbestos removal requirements are addressed in Part II, Chapter 2, Section 2.1.2.1 (asbestos NESHAPs).

Background Information on Rulemaking Under TSCA

Section 6 of TSCA requires EPA to promulgate regulations when there is a reasonable basis to conclude that a chemical substance or mixture (chemical) presents or will present an unreasonable risk of injury to human health or the environment. A demonstration that a chemical will present an unreasonable risk is made on the basis of a qualitative or quantitative risk assessment, which evaluates the likelihood that the chemical will cause adverse effects either to human health or the environment.

Chemicals reviewed under TSCA §6 include chemicals that are listed on the TSCA §8(b) inventory and chemicals for which data has been submitted to EPA under TSCA §8(e), under a mandatory reporting rule, or from the National Toxicology Program, the TSCA §5 New Chemicals Program, the TSCA §4 Test Rules Program, or other sources. From the thousands of chemicals reviewed each year, candidates are selected for further review based on their potential to cause serious, long-lasting, or irreversible harm to human health or the environment, e.g., chemicals that are carcinogenic, mutagenic, or teratogenic, or that cause chronic toxicity, behavioral disorders, cumulative or synergistic effects, or environmental toxicity.

The risk assessment developed for a chemical that undergoes detailed review is used to determine whether EPA should regulate activities involving the use of the chemical or whether the chemical should be referred to another agency (e.g., OSHA, CPSC) for regulation. With respect to Superfund cleanup actions, the risk numbers generated under TSCA will be included within the "to be considered" category and may be used when developing a protective remedy (see Part I, Chapter 1, Section 1.4). The Office of Toxic Substances periodically updates the list of risk assessments.

3.0.1 PCB Requirements[1]

3.0.1.1 TSCA Disposal Requirements

TSCA requirements will be applicable when disposal of material contaminated with PCBs at concentrations of 50 ppm or greater occurs after February 17, 1978.[2,3] TSCA requirements for disposal of PCB-contaminated wastes vary according to the physical state (liquid, non-liquid, or articles) and concentration of PCBs (40 CFR section 761.60).[4] The following TSCA requirements, listed by waste type and concentration of PCBs, may be ARARs for treatment and disposal of waste contaminated with PCBs:

Liquid Waste

- PCBs at concentrations of 500 ppm or greater must be disposed of in a TSCA-approved incinerator (40 CFR section 761.60(a)), or by a TSCA-approved alternative disposal method (section 761.60(e)).
- Any PCB dielectric fluid, regardless of its concentration, mixed with any fluid containing 500 parts per million (ppm) or greater PCBs must be disposed of in a TSCA-approved incinerator (40 CFR section 761.30(a)(2)(iv)), or by a TSCA-approved alternative disposal method (section 761.60(e)).
- Mineral oil dielectric fluid from PCB-contaminated electrical equipment or other liquids containing PCBs at a concentration of 50 ppm or greater, but less than 500 ppm must be disposed of in either a TSCA-approved

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[1] Further information on the Superfund approach to cleanup of sites contaminated with PCBs is being documented in the draft Guidance and Regulatory Background on the Determination of Response Actions at Superfund Sites with PCB Contamination, which will be available as an OSWER Directive when finalized.

[2] For CERCLA Fund-lead actions, PCB-contaminated material is evaluated based on the concentration at which the PCBs occur in the environment. If, under an enforcement action, it is determined that the material was spilled by an RP after the effective date of the TSCA regulations, the material is evaluated under TSCA as if the PCBs were in the form and at the concentration of the material that was spilled.

[3] TSCA requirements may be relevant and appropriate regardless of the date of disposal.

[4] "Disposal" under TSCA is used broadly and includes destruction and landfilling actions.

incinerator, a TSCA-approved chemical waste landfill (if not ignitable), or a high efficiency boiler (40 CFR section 761.60(a)(2) and (3)), or by a TSCA-approved alternative disposal method (section 761.60(e)).

Non-Liquid Waste

- Any non-liquid PCBs at concentrations of 50 ppm or greater in the form of contaminated soil, rags, or other debris shall be disposed of in a TSCA-approved incinerator or in a TSCA-approved chemical waste landfill (40 CFR section 761.60(a)(4)), or by a TSCA-approved alternative disposal method (section 761.60(e)).

- All dredged materials and municipal sewage treatment sludges that contain PCBs at concentrations of 50 ppm or greater shall be disposed of in a TSCA-approved incinerator or a TSCA-approved chemical waste landfill, or by a method approved by the appropriate Regional Administrator if it can be shown that disposal in an incinerator or chemical waste landfill is not reasonable or appropriate and that an alternate disposal method will provide adequate protection to human health and the environment (40 CFR section 761.60(a)(5)).

Articles

- PCB Transformers (500 ppm PCBs or greater) may be disposed of in a TSCA-approved incinerator or drained, flushed with a solvent, drained again, and placed in a TSCA-approved chemical waste landfill (40 CFR section 761.60(b)(1)(i)), or by a TSCA-approved alternative disposal manner (section 761.60(e)). The drained liquids must be incinerated in an incinerator that complies with section 761.70.

- Other PCB Articles (500 ppm PCBs or greater) including electric motors, pumps, and pipes, may be disposed of in a TSCA-approved incinerator or drained and placed in a TSCA-approved chemical waste landfill (40 CFR section 761.60(b)(5)(i)), or by a TSCA-approved alternative disposal manner (section 761.60(e)). The drained liquids must be incinerated in an incinerator that complies with section 761.70.

- Other PCB-Contaminated Articles (between 50 and 500 ppm PCBs) must be disposed of by draining free-flowing liquid and disposing of liquid in accordance with 40 CFR sections 761.60(a)(2) or (3) (see methods for disposal of liquids described above). The disposal of the drained article is not regulated (40 CFR section 761.60(b)(5)(ii)).

- PCB-Contaminated Electrical Equipment (except capacitors) including transformers, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cables (50-499 ppm PCBs) must be drained. The disposal of drained equipment is not regulated (40 CFR section 761.60(b)(4)).

- PCB Small Capacitors (often found in fluorescent light ballasts) may be disposed of as municipal solid waste (40 CFR section 761.60(b)(2)(ii)), except that those owned by a capacitor manufacturer must be sent either to a TSCA-approved incinerator or a TSCA-approved chemical waste landfill (40 CFR section 761.60(b)(2)(iv) and (v)).

- Large High or Low Voltage Capacitors (500 ppm PCBs or greater) must be disposed of in an approved incinerator (40 CFR section 761.60(b)(2)(iii)(B) and (v)), or by a TSCA-approved alternative disposal manner (section 761.60(e)).

- PCB hydraulic machines, such as hydraulic die casting machines (50-999 ppm PCBs) may be disposed of as municipal solid waste after they are drained. If the PCB liquid contains 1000 ppm PCBs or greater, the hydraulic machine must be flushed with a solvent containing less than 50 ppm PCBs (40 CFR section 761.60(b)(3)). The solvent must be disposed of in an incinerator that complies with section 761.70.

- PCB Containers with concentrations of 500 ppm PCBs or greater, unless decontaminated by flushing three times with a solvent of less than 50 ppm PCBs, must be disposed of in TSCA-approved incinerator or, if first drained, in a TSCA-approved chemical waste landfill (40 CFR section 761.60(c)), or by a TSCA-approved alternative disposal manner (section 761.60(e)). The drained liquid must be disposed of in an incinerator that complies with section 761.70.

- PCB Containers with concentrations of less than 500 ppm PCBs must be thoroughly drained and the drained liquid must be disposed of in accordance with 40 CFR sections 761.60(a)(2) or (3).

The regulations further specify requirements that the incinerator (40 CFR section 761.70), chemical waste landfill (40 CFR section 761.75), or other disposal method (40 CFR section 761.60(a)(5)(iii)) must achieve for each of the PCB types described above. In addition, the regulation states that machinery that comes in direct contact with PCBs is considered contaminated and must be disposed of by an approved method (40 CFR section 761.60(b)).

Under section 761.60(e), an alternative method of destroying PCBs may be used if it demonstrates a level of performance equivalent to incineration and the alternative method has been approved by the Regional Administrator or the Director of the Exposure Evaluation Division, Office of Toxic Substances.

Although the on-site disposal of PCBs from a Superfund site does not require a TSCA permit, substantive requirements of all applicable or relevant and appropriate Federal and State (if more stringent than Federal) standards, regulations, criteria, or limitations for PCB disposal must be met. That is, the destruction and removal efficiency of PCBs by on-site incineration must be 99.9999 percent and the ash must contain less than 2 ppm PCBs. HCL emissions must be limited to 4 pounds per hour, or, if greater than 4 pounds per hour, the emissions must not be greater than 1 percent of the HCL entering the pollution control device. For alternative methods of disposal pursuant to 40 CFR section 761.60(e), if chemical destruction or separation of the PCBs from the soil is carried out, the destruction/separation of the PCBs must result in soil containing less than 2 ppm PCBs to ensure equivalence to a PCB incinerator. All chemical destruction or separation must occur on site and achieve the less-than-2 ppm level. If the material containing the PCBs is shipped off site for disposal, it must be sent to a TSCA-permitted PCB disposal facility.

3.0.1.2 Storage for Disposal

The substantive portions of the PCB storage requirements may be ARARs for on-site storage of PCBs prior to disposal. The regulations (40 CFR section 761.65) specify that PCBs and PCB Items (e.g., equipment) at concentrations of 50 ppm or greater must be disposed of within one year after being placed in storage for disposal. The regulations also include structural requirements for facilities used for the storage of PCBs and PCB Items, requirements for the containers used to store PCBs, the requirement to prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan, and the requirement to check all PCB articles and containers for leaks at least once every 30 days, and other requirements. The requirement to prepare an SPCC Plan is an administrative requirement and, therefore, not an ARAR; substantive requirements of the SPCC regulations which may be ARARs are, for example, building retaining walls to contain spills.

3.0.1.3 PCB Spill Cleanup Policy

Under 40 CFR section 761.60(d), EPA defines improper disposal of PCBs as intentional (as well as unintentional) spills, leaks, and other uncontrolled discharges of PCBs at concentrations of 50 ppm or greater. PCB spills include spills, leaks, or other uncontrolled discharges where the release results in any quantity of PCBs running off or about to run off the surface of the equipment or other PCB source, as well as the contamination resulting from these releases. With the exception of the requirement for timely cleanup, regulatory requirements for the cleanup of PCB spills have never been established.

However, EPA recently published a nationwide TSCA PCB spill cleanup policy (52 FR 10688, April 2, 1987; 40 CFR Part 61, Subpart G). The requirements under 40 CFR Part 61, Subpart G, while not potential ARARs, are TBCs for CERCLA actions, particularly with respect to cleanup of soils contaminated with PCBs. The policy establishes guidelines for spill cleanups that, if followed, will minimize the need for the Agency to take enforcement action for illegal disposal. This policy applies to the cleanup of spills occurring after May 4, 1987 (the effective date of the policy) resulting from the release of materials containing PCBs at concentrations of 50 ppm or greater. Spills that occurred before May 4, 1987, are to be decontaminated in accordance with the existing Regional standards.[5] The policy is based on EPA's evaluation of the potential routes of exposure and potential risks associated with common PCB spills.

The policy requires the party responsible for the spill to clean up PCBs to different levels depending upon spill location, the potential for exposure to residual PCBs remaining after cleanup, the concentration of PCBs initially spilled, and the nature and size of the population potentially at risk of exposure. Thus, the policy applies the most stringent requirements for PCB spill cleanup to areas where there is a greater potential for human exposure to spilled PCBs.

The cleanup standards described in the policy cover the following spill situations:[6]

- Low-concentration spills that involve less than 1 pound PCBs by weight (40 CFR section 761.125(b)). "Low-concentration" means PCB materials that are tested and found to contain less than 500 ppm PCBs, or those PCB-contaminated materials that

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[5] Policies for the cleanup of PCB spills have been established by each EPA Regional Office, and provide general guidelines to be applied on a case-by-case basis for specific spill situations.

[6] Additional requirements for cleanup of indoor surfaces may be TBCs for CERCLA actions involving indoor PCB contamination (40 CFR section 761.125).

EPA assumes to be at concentrations below 500 ppm. The policy states that:

-- Solid surfaces should be double washed/rinsed; and

-- All soil within the spill area, plus a 1-foot buffer, should be excavated, and the ground restored to its original configuration by backfilling with clean soil (i.e., soil containing less than 1 ppm PCBs).

- High-concentration spills and low-concentration spills involving 1 pound or more PCBs by weight. "High-concentration" means PCB materials that contain 500 ppm or greater PCBs, or those materials that EPA assumes contain 500 ppm or greater PCBs in the absence of testing. The policy describes actions that should be taken immediately (within 24 hours) including restricting the area, recording and documenting the area of visible contamination, and initiating cleanup and removal of all visible traces of contamination. The policy then describes cleanup standards depending upon the location of the spill:

  -- Outdoor electrical substations. Contaminated solid surfaces will be cleaned to a PCB concentration of 100 micrograms/100 square centimeters. Soil contaminated by the spill will be cleaned either to 25 or 50 ppm PCBs by weight provided that a label or notice is visibly placed in the area.

  -- Other restricted access areas. These are areas other than electrical substations that are at least 0.1 kilometer away from residential/commercial areas, and to which access is limited by man-made barriers (e.g., fences and walls) or substantially limited by naturally occurring barriers such as mountains, cliffs, or rough terrain. The policy describes cleanup standards for surfaces contaminated with PCBs and further states that soil contaminated by the spill will be cleaned to 25 ppm PCBs by weight.

  -- Nonrestricted access areas. These are areas other than outdoor electrical substations and other restricted access locations, i.e., residential/ commercial areas and unrestricted access rural areas.

The policy sets forth standards for cleanup of surfaces and vault areas. Also, the policy states that soil contaminated by the spill will be decontaminated to 10 ppm PCBs by weight provided that the soil is excavated to a minimum depth of 10 inches, a 10-inch cap of clean soil (less than 1 ppm PCBs) is put on, and the site is restored.

- Spills at sites warranting additional cleanup. The policy states that in exceptional spill situations, site-specific risk factors may warrant additional cleanup to more stringent numerical decontamination levels. For example, even after cleanup to the standards specified in the policy, site-specific characteristics such as short depth to ground water, type of soil, or the presence of a shallow well may pose an exceptionally high potential for ground-water contamination by PCBs. Therefore, the policy provides that the Regional Administrator may require additional cleanup to prevent unreasonable risk. The RPM should similarly consider whether additional cleanup (beyond the policy's numerical standards) is necessary in order for the Superfund action to be protective of human health and the environment.

- Spill situations excluded under the policy. The policy is intended to cover typical PCB spill situations involving the limited release of PCBs during the course of EPA-authorized activities such as the use of electrical equipment, the servicing of electrical equipment, and the storage of PCBs for disposal. Other spill situations are not considered "typical." Therefore, the policy provides that the numerical cleanup standards described above are not to be applied automatically to non-typical spills directly into:

  -- Surface water;

  -- Drinking water;

  -- Sewers;

  -- Grazing lands; and

  -- Vegetable gardens.

> For such PCB spills, immediate practicable containment action must be taken to prevent further contamination, the appropriate Regional Office must be notified, and cleanup must achieve the standards set by the Regional Office. The standards are set on a case-by-case basis.

3.0.1.4 RCRA Land Disposal Restrictions

Liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm are addressed by RCRA under the California List Wastes land disposal restrictions, promulgated July 8, 1987.

Under 40 CFR section 268.42(a)(1), liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm but less than 500 ppm must be incinerated in a facility meeting the requirements of 40 CFR section 761.70 or burned in a high efficiency boiler meeting the requirements of 40 CFR section 761.60.

40 CFR section 268.42(a)(1) also specifies that liquid hazardous wastes containing PCBs at concentrations greater than or equal to 500 ppm must be incinerated in accordance with the technical requirements of 40 CFR section 761.70.

PCBs also are halogenated organic compounds (HOCs) and may be regulated, in either liquid or solid form, under the HOC California List Wastes land disposal restrictions.[7] If HOC wastes are mixed with a RCRA-listed or characteristic waste and the total concentration of HOCs is equal to or greater than 1,000 mg/kg, 40 CFR section 269.42(a)(2) requires that the wastes be incinerated in accordance with the requirements of Part 264, Subpart O, or Part 265, Subpart O, or treated in boilers or industrial furnaces in accordance with applicable regulatory standards.[8]

Thermal treatment under 40 CFR section 761.70, if performed on site, must also be in compliance with substantive portions of applicable or relevant and appropriate requirements in Parts 264, 265, and 266. Subpart O of 40 CFR Part 264 specifies requirements for the incineration of hazardous wastes at permitted hazardous waste facilities, including requirements relating to waste analysis, performance standards, operation, and monitoring.

Subpart O of 40 CFR Part 265 specifies similar requirements for the incineration of hazardous wastes at interim status facilities. In addition, Subpart P establishes requirements for other methods of thermal treatment, including those requirements relating to general operations, waste analysis, monitoring, closure, and open burning.

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[7] The HOC constituents are listed in Appendix III to 40 CFR Part 268.

[8] Except for diluted HOC wastewaters containing between 1,000 and 10,000 mg/l, which must only be treated to a concentration of less than 1,000 mg/l before land disposal.

Subpart D of 40 CFR Part 266 specifies requirements for the incineration of hazardous wastes for energy recovery, including standards applicable to burners of hazardous waste fuel.

Alternative treatment methods (40 CFR section 268.42(b)) may be used if the treatment method can be shown to achieve a measure of performance equivalent to methods specified in paragraph (a).

This rule specifies stricter standards for a subset of the PCB wastes covered by TSCA -- liquid wastes containing PCBs at concentrations between 50 and 500 ppm that also contain RCRA listed or characteristic wastes. Where TSCA would allow disposal of these wastes in a landfill meeting specifications of 40 CFR section 761.75, RCRA requires thermal treatment in an incinerator or high efficiency boiler or an equivalent alternate treatment.

3.1 FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) authorizes EPA to regulate the sale, distribution, and use of all pesticide products in the United States. EPA accomplishes this through a product licensing or registration process that includes reregistration of products and Special Review of pesticides that appear to pose health or safety concerns. A vital part of the pesticide registration process is EPA approval of product labeling. Under FIFRA, the label is the law -- use of a registered pesticide product in a manner inconsistent with its labeling (including disposal) is a violation of the Act.

To ensure proper use of pesticides that are especially toxic or pose particular health or environmental hazards, EPA restricts the use of such products to trained, certified pesticide applicators. Products found to pose risks that outweigh their benefits may be suspended or cancelled by EPA. All FIFRA provisions are enforced by a compliance monitoring program that is carried out by States, often under cooperative agreements with EPA.

Under FIFRA §19, EPA has the authority to issue procedures and regulations for the disposal and storage of excess pesticides and pesticide containers. EPA has published procedures for disposal and storage in 40 CFR Part 165, Subpart C. These procedures are recommended for all pesticide storage and disposal activities, but are mandatory for any storage or disposal activities undertaken by the Agency. However, in 1988, FIFRA was substantially amended to expand its authority over storage and disposal of pesticides and pesticide containers. In particular, the 1988 amendments explicitly provide for the enforceability of regulations issued under FIFRA §19. Consistent with this mandate, revised regulations for the storage and disposal of pesticide products and containers are currently under development. Since the current Subpart C contains nonbinding recommendations, at this time these procedures are not potential ARARs for Superfund cleanup actions but should be considered when developing a protective remedy.

Labels are required for all registered pesticide products and generally include storage and disposal statements. These statements are tailored to reflect the toxicity of the product and type of use pattern and user involved (for example, the household user as opposed to the commercial or industrial user). It is unlawful for the user to dispose of a pesticide product or its container in a manner inconsistent with its label instructions. Similarly, it is unlawful to violate a cancellation or suspension order, which may contain specific storage or disposal provisions. At a Superfund site, however, the disposal labeling on a pesticide may provide useful information but compliance with the labeling directions may not be an applicable requirement since at that point in time the pesticide may not be considered a pesticide product; it may be considered a RCRA waste (see Section 3.1.1.3).

In addition to the labeling requirements for the use, storage, and disposal of all registered pesticide products, EPA has promulgated tolerance levels for pesticides and pesticide residues in or on raw agricultural commodities under authority of the Federal Food, Drug, and Cosmetic Act (see 40 CFR Part 180). These tolerance levels are potential ARARs for sites at which agricultural commodities and wildlife are obtained for consumption.

3.1.1 FIFRA Requirements

The following procedures and manuals are not potential ARARs, but may be considered in developing a protective remedy.

3.1.1.1 Procedures Not Recommended for Disposal (40 CFR section 165.7)

The current FIFRA regulations recommend that pesticides, pesticide containers, or pesticide container residue should not be stored or disposed of:

- In a manner inconsistent with its label or labeling;
- So as to cause or allow open dumping of pesticides or pesticide containers;
- So as to cause or allow open burning of pesticides or pesticide containers, except small quantities of certain containers in areas where allowed by State and local regulations;
- So as to cause or allow water dumping or ocean dumping of pesticides or pesticide containers except in conformance with regulations developed under the National Marine Protection, Research and Sanctuaries Act and the Clean Water Act (see Part I, Chapter 3);
- So as to violate any applicable Federal or State pollution control standard; and

- So as to violate any applicable provision of FIFRA.

3.1.1.2 Procedures Recommended for the Disposal of Pesticides (40 CFR section 165.8)

FIFRA regulations recommend the following procedures for the disposal of certain groups of pesticides:

- Organic pesticides (except organic mercury, lead, cadmium, and arsenic). The preferred method of disposal is incineration in a pesticide incinerator at the specified or other temperature/dwell time combination that will cause complete destruction of the pesticide. Any liquid, sludges, or solid residues should be disposed of in accordance with applicable Federal, State, and local laws. If appropriate incineration facilities are not available, other methods to be considered include burial in a specially designated landfill, chemical methods, or well injection.[9] The regulations caution that the impact of these alternatives is not well known in all cases and that they should be used only with specific guidance. If adequate procedures are not available, temporary storage of pesticides for disposal should be undertaken.

- Metallo-organic pesticides (except organic mercury, lead, cadmium, or arsenic compounds). The regulations recommend subjecting these compounds to an appropriate chemical or physical treatment to recover the heavy metals before incineration. Other disposal alternatives, if treatment and incineration are not available, are burial in a landfill, chemical degradation, or well injection. These alternatives are subject to the same cautions described above for the disposal alternatives for organic pesticides.

- Organic mercury, lead, cadmium, arsenic, and all inorganic pesticides. The regulations recommend that chemical deactivation be used to convert these pesticides to non-hazardous compounds and to recover the heavy metal resources. Chemical

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[9] The environmental impact of the soil injection method (i.e., burial in a specifically designated landfill) has not been clearly defined and should be undertaken only with specific guidance. It is recommended that such guidance be requested from the Regional Administrator in the Region where the material will be disposed of prior to undertaking disposal by this method.

> deactivation is not currently available for all pesticides. If chemical deactivation is not available, these pesticides should be encapsulated and buried in a specially designated landfill.[10] If neither option is available, the pesticides should be placed in suitable containers and temporarily stored until adequate disposal facilities or procedures are available.

40 CFR Part 165, Subpart G also provides recommended procedures for the disposal of pesticide containers and residues (40 CFR section 165.9) and the storage of pesticides and pesticide containers (40 CFR section 165.10). Consistent with the 1988 amendments of FIFRA, revised regulations covering these materials are currently under development.

3.1.1.3 Pesticide Control Under Other Statutes

Requirements under the Clean Water Act (CWA) and RCRA are potential ARARs for the disposal of pesticides. Because some pesticides are regulated as toxic pollutants under the CWA, effluent limitations or prohibitions regarding the discharge of pesticides to surface waters are potential ARARs (see Part I, Chapter 3). Further, some discarded or off-specification pesticides are listed as a hazardous waste and some may potentially be hazardous by characteristic (40 CFR section 261.24), and therefore subject to regulation under Subtitle C of RCRA, (40 CFR sections 261.33(e) and (f)) (see Part I, Chapter 2).

3.1.1.4 Other Manuals

The following technical manuals may provide useful information regarding pesticides, e.g., toxicity, solubility:

- The Degradation of Selected Pesticides in Soil: A Review of the Published Literature, Municipal Environmental Research Laboratory (August 1977), EPA-600/9-77-022.
- Farm Chemicals Handbook (updated yearly).
- Crop Protection Chemicals, Ed. by L. Fowden, Royal Society of London (1981).

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[10] "Encapsulate" means to seal a pesticide, and its container, if appropriate, in an impervious container made of plastic, glass, or other suitable material which will not be chemically degraded by the contents. This container then should be sealed within a durable container made from steel, plastic, concrete, or other suitable material of sufficient thickness and strength to resist physical damage during and subsequent to burial or storage (40 CFR Part 165, Subpart A).

CHAPTER 4

OTHER RESOURCE PROTECTION STATUTES

4.0 OVERVIEW

The laws addressed in the following sections contain consultation, documentation, and reporting requirements that must be complied with for off site remedial actions,[1] and that are strongly recommended to ensure that on-site remedial activities comply with the substantive ARARs. While EPA interprets CERCLA §121(e) to exempt lead agencies from obtaining Federal, State, or local permits (or documents similar to permits) or from complying with the administrative requirements for on-site remedial activities, it is strongly recommended that lead agencies, nevertheless, consult as specified with administering agencies for on-site actions. The administering agencies have the expertise to determine the impacts of a remedial action on particular aspects of the environment and what steps should be taken to avoid and mitigate adverse impacts.

The National Environmental Policy Act (NEPA) Compliance staffs at Headquarters in the Office of Federal Activities (OFA) and in the Regions (a list of Regional NEPA coordinators is available from OFA) can assist project officers in meeting the substantive requirements of these laws and in carrying out consultation through contacts in other agencies. RPMs are advised to contact the NEPA Compliance staff early in the planning process of a remedial action. In addition to such site-specific coordination, Regions should establish procedures, protocols, or memoranda of understanding that, while not recreating the administrative aspects of the consultation or review process, ensure cooperation and coordination between the Regional Superfund and NEPA staffs, and between the Regional staff and the appropriate Federal agencies. Moreover, State Superfund and other State program staff should be involved where there is a State-lead action or where State ARARs are under consideration. Coordination among all appropriate offices should be established.

The laws described in this section apply to activities conducted by Federal agencies or with Federal assistance. EPA interprets the CERCLA §121 requirement to meet ARARs as applicable to all remedial activities undertaken pursuant to CERCLA §§104, 106, and 122. Therefore, the ARARs described in this chapter must be complied with by the lead agency (EPA, State, or other

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[1] CERCLA §121(d)(3) states that off-site transfer of CERCLA wastes shall only be transferred to facilities that are in compliance with applicable Federal law. RCRA requires permitted hazardous waste facilities to comply with the Endangered Species Act and the National Historic Preservation Act, as well as other environmental statutes. Therefore, treatment or disposal of CERCLA wastes at a RCRA permitted facility does not require separate compliance efforts because the RCRA permit process will have ensured the facility's compliance with these laws.

Federal agency), including CERCLA actions conducted by responsible parties under the direction of a lead agency.[2]

4.1 NATIONAL HISTORIC PRESERVATION ACT

Pursuant to §106 and §110(f) of the National Historic Preservation Act (NHPA),[3] as amended, CERCLA remedial actions are required to take into account the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places.[4] For purposes of this chapter, historic properties are referred to as cultural resources. The National Register is a listing of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

The first step toward substantive compliance with the NHPA is to identify cultural resources included on (or eligible for inclusion on, based on criteria described in Section 4.1.1) the National Register that are located in or near the area under study in the RI. Cultural resource surveys are usually carried out to help in the identification of previously undocumented resources. The second step is to identify the possible effects of proposed remedial activities on such resources. If the activity will have an effect on such resources, the lead agency must examine whether feasible alternatives exist that would avoid such effects. If an effect cannot reasonably be avoided, measures shall be taken to minimize or mitigate the potential effects.

If, at any point, the conclusion is reached that cultural resources are not present or will not be affected, no further investigation is necessary (see Exhibit 4-1).

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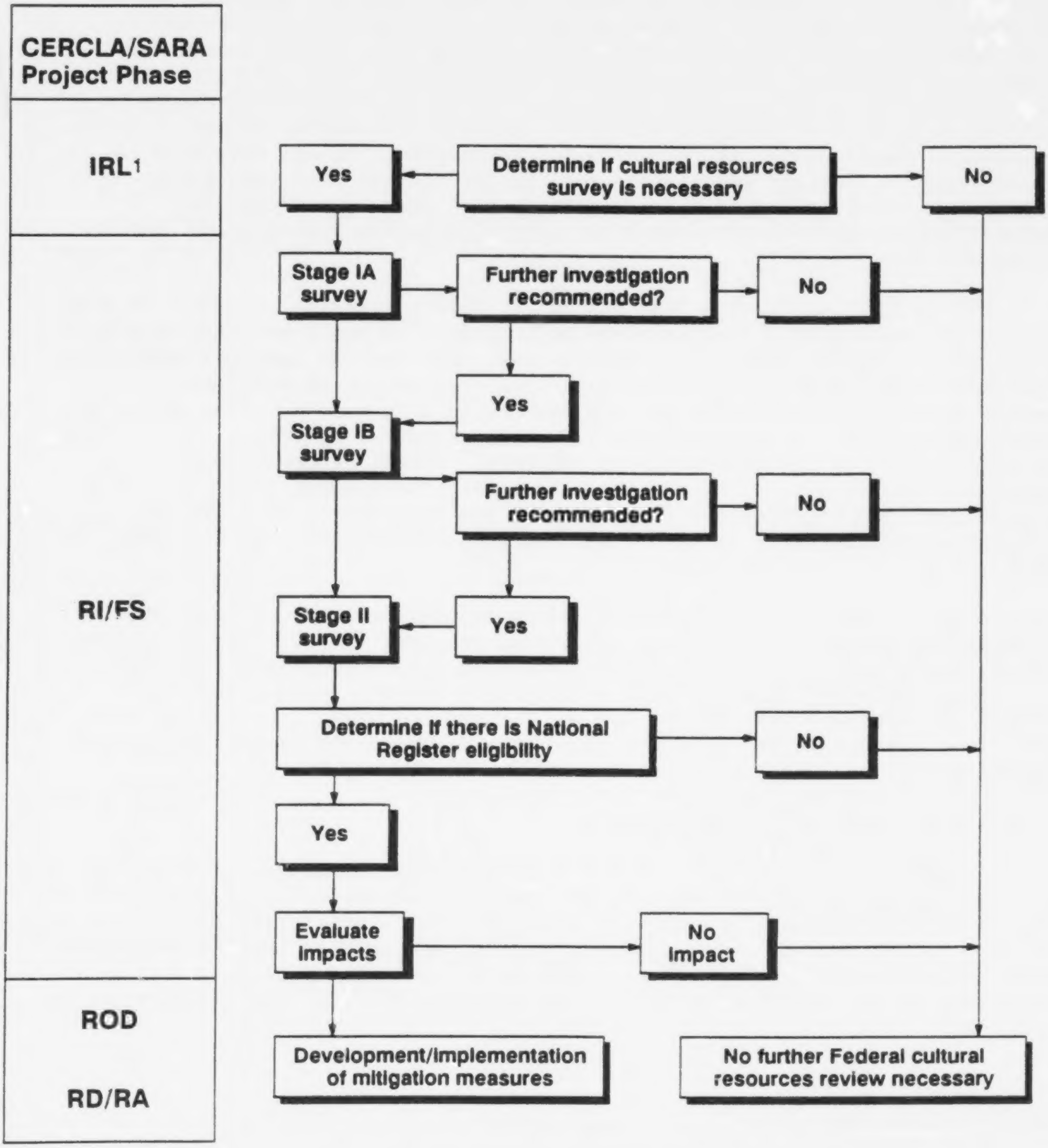
[2] The phrase, "lead agency," is used throughout this chapter to identify the 'actor' taking steps to ensure compliance with requirements described here. At any given site or step in the process, the 'actor' may be EPA, the State, a Federal agency remediating a site at a Federal facility, or a responsible party. However, EPA retains sole responsibility for some activities and is ultimately responsible for ensuring compliance, whether as the lead agency or in an oversight or concurrence role.

[3] 16 USC §§470 *et. seq.*, and its implementing regulation (36 CFR Part 800).

[4] The Historic Sites Act of 1935, Executive Order 11593, the Presidential Memorandum "Environmental Quality and Water Resources Management," and 36 CFR Part 800 "Protection of Historic and Cultural Properties" are not discussed separately here, but are relevant to the historic preservation process. Other statutes contain requirements regarding archeological resources, e.g., the Archaeological and Historic Preservation Act of 1974 and the Archaeological Resources Protection Act of 1979. The State Historic Preservation Officer (see footnote 5) can be consulted to assist in determining whether these requirements apply.

Exhibit 4–1

Cultural Resources Review Under NHPA and Remedy Selection Under CERCLA


CERCLA/SARA Project Phase
IRL[1]
RI/FS
ROD
RD/RA
Determine if cultural resources survey is necessary
Yes
No
Stage IA survey
Further investigation recommended?
No
Yes
Stage IB survey
Further investigation recommended?
No
Yes
Stage II survey
Determine if there is National Register eligibility
No
Yes
Evaluate impacts
No impact
Development/implementation of mitigation measures
No further Federal cultural resources review necessary

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[1] *The Interagency Review Letter (IRL), formerly known as the A–95 Clearing House Letter, is the scoping phase of the process.*

The regulations implementing NHPA §106 describe the administrative and procedural requirements that must be followed by Federal agencies. These procedural requirements include consultation and coordination between the Federal agency, a party undertaking a Federally assisted cleanup, the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO),[5] and other interested parties. For CERCLA actions, these requirements must be complied with for any part of the cleanup action that takes place off site. (For example, if an access road is to be built off site to carry out the proposed remedial action, the road's impact area should be subject to a cultural resource survey.) Although administrative and procedural requirements are not ARARs for on-site activities, adherence to these steps is strongly recommended for cleanup actions that take place entirely on site because of the effectiveness of these procedures in identifying cultural resources and the expertise of the SHPO and the ACHP in these matters.

States often act as the lead agency for CERCLA remedial actions. In such cases, the responsibilities described in this section would be undertaken by the State. However, NHPA regulations require that Federal agencies retain the responsibility for final decisions regarding the impacts of remedial activities on cultural resources. Therefore, in this section, lead agency is used whenever EPA or a State agency may act on cultural resource identifications or "no effect" determinations. Formal determinations regarding eligibility for the National Register, "no adverse effect" evaluations, and consultation with the ACHP are reserved to EPA. These determinations, however, should be made by EPA with the assistance of the State.

This section of the guidance manual describes the criteria used in determining whether a property is a cultural resource eligible for listing on the National Register, and the site information needed to identify cultural resources. Also described in this section is a recommended approach for collecting the necessary information and determining within the remedy selection process whether proposed remedial activities will affect cultural resources.

4.1.1 Criteria for Evaluation

36 CFR section 60.4 identifies the criteria applied to evaluate whether cultural resources will be eligible for inclusion on the National Register. The evaluation is based in part upon the quality of significance in American history, architecture, archeology, engineering, and culture that is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

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[5] The State Historic Preservation Officer is the official responsible pursuant to §101(b)(1) of the Act for administering the State historic preservation program within each State or jurisdiction.

- are associated with events that have made a significant contribution to the broad patterns of our history;

- are associated with the lives of persons significant in our past;

- embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- have yielded, or may be likely to yield, information important in prehistory or history.

4.1.2 Needs Determination

The following factors are reviewed in order to determine whether a Cultural Resource Survey (CRS) is necessary. This analysis should be conducted prior to developing the RI/FS Workplan, with the recognition that varying amounts of the following information will be available for each CERCLA site:

- The type and scope of activity under preliminary consideration;

- The nature and extent of the physical disruption likely to be associated with the undertaking;

- The environmental characteristics of the planning area;

- The type of direct and indirect impacts anticipated in the planning area;

- The data gathered from a field inspection of the proposed planning area, including photo-documentation of any potential cultural resources that may be directly or indirectly impacted; and

- The recommendations of the SHPO and other appropriate State agencies, and State and local historic preservation groups, local governments, Indian Tribes, and other parties likely to have knowledge of historic properties in the area.

4.1.3 Cultural Resource Survey

A CRS is the category of activities necessary to identify cultural resources within the project area and, where necessary, to develop the information required to apply the National Register's criteria for evaluation (see Section 4.1.1 above). The objective of the CRS is to develop adequate information to make the substantive determinations required by the NHPA. A

CRS is carried out by a professional archaeologist/historian, as defined by Department of the Interior (DOI) standards.[6]

4.1.4 Implementing NHPA Requirements during the CERCLA Cleanup Action

The following sections discuss how the steps in the CERCLA cleanup process provide opportunities to develop the information and make the determinations required under §106 of the NHPA. Exhibit 4-1 illustrates that these determinations, as appropriate, may be included in the remedy selection process.

4.1.4.1 Remedial Investigation/Feasibility Study

- The Workplan

Should there be a need for a CRS (see Section 4.1.2 above), then the requirements for the CRS can be incorporated into the RI/FS Workplan. Most of the information for a CRS will be developed during the RI/FS. The CRS process is a staged investigation, narrowing in focus when specific resources are identified. The RI/FS Workplan may include a scope of work and schedule for a Stage I (A&B) Site Recognition survey and allow for scheduling of a Stage II Site Definition and Evaluation survey (described below), should it be necessary.

Even at those sites where a CRS is undertaken, it will not be necessary or appropriate to go through all of these steps at every CERCLA site in order to achieve compliance with NHPA. The objective of these surveys is to have information available regarding cultural resources at various decision points, e.g., when remedial alternatives are discussed during the FS phase, and when making eligibility, mitigation, and data recovery determinations.

- Stage I Survey

The Stage I survey is designed to determine the presence or absence of cultural resources in the project's potential impact area. The Stage I work should be conducted early during the planning activities for each project. This allows the information derived from this work to be used in developing and screening remedial alternatives to avoid or minimize effects on historical, architectural, archaeological or culturally significant properties. For the purpose of this survey, the study area is the planning area of the proposed project. To facilitate planning, the Stage I survey may be divided into two sequential units of study:

-- Stage IA: Literature Search and Sensitivity Study

Stage IA is the initial level of survey and requires documentary research designed to identify any known or potential historical, architectural, archeological, or culturally significant resources within the project area. A primary objective of the study is to evaluate the sensitivity of the project area for the presence of cultural resources; this information will be used to guide the field investigation that follows. In carrying out the initial search, sources at the State Historic Preservation Office, local governments, universities, local libraries, museums, historical societies, and other individuals or organizations with historical and cultural expertise can be consulted as appropriate. Indian Tribes and other appropriate parties may also represent important sources of information. In addition, the nature and extent of the proposed project is evaluated, an initial walk-over reconnaissance and surface inspection is completed, and the effect of prior ground disturbance on the probability of identifying cultural resources is assessed.

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[6] See Department of the Interior Standards and "Guidelines on Archaeology and Historic Preservation," 48 FR 44716-42 (September 29, 1983).

The Stage IA search should identify actual or potential cultural resources and all properties that are eligible, listed, or being considered for inclusion in the National Register within the project's area. To further define the potential for unidentified resources, the Stage IA search should include synthesis of land use patterns, and prehistoric and historic cultural development of the project area. This information should provide the basis for identifying zones of cultural resource sensitivity. This synthesis may be particularly useful when screening alternatives, analyzing indirect effects, and determining the need for and scope of a Stage IB survey. Areas where substantial prior land modification is evident should be clearly identified. It is appropriate to include materials (e.g., maps, photos, soil boring logs) that support conclusions of the analysis. Further, the Stage IA sensitivity study will result in recommendations for the subsequent Stage IB investigation.

-- Stage IB: Field Investigation

A Stage IB field investigation can include subsurface testing, and is recommended unless the presence or absence of resources can be determined by direct observation or by examination of historical records and documents. Although detailed evaluation of specific resources is not carried out at this level, it is necessary to record and describe the cultural resources, including their location on the site, as fully as possible to aid in the formulation of recommendations for avoidance or further evaluation.

The final Stage IB report presents the results of the field investigation, including: a description of the survey design and methodology (based on results of the Stage IA study); complete records of soil stratigraphy; and an artifact catalogue characterizing the nature of the discoveries. As appropriate, this should include the identification, estimated data range, and quantity or weight of each artifact. The locations of all field test units must be accurately plotted on a project area map, with locations of identified resources clearly defined. Photographs that illustrate salient points of the survey are a necessary component of the final report. Detailed recommendations and supporting rationale for additional investigation must be incorporated into the conclusions of the Stage IB report.

-- Review of Stage I Survey Findings

The schedule for the CRS should provide for lead agency review of the Stage I survey results and sufficient opportunity for the completion of a Stage II survey, should one be necessary, before completion of the RI fieldwork. The lead agency will evaluate the Stage I survey results to determine the need for, and refine the scope of, any Stage II survey.

If all cultural resources identified through the Stage IA and/or Stage IB surveys will not be affected by the proposed project, the survey process is complete. If cultural resources identified by these studies may be affected, further evaluation may be required to determine the potential eligibility of the resources for inclusion in the National Register. The extent of additional cultural resource study may be reduced by project modifications (e.g., realignment or relocations) that avoid or minimize potential effects.

- Stage II Survey: Site Definition and Evaluation

The Stage II survey is a detailed evaluation of an identified cultural resource(s) that may be affected by the remedial alternatives being considered. Research is carried out on each identified resource to provide adequate data to allow a determination of the resource's eligibility for listing in the National Register (see next section). The Stage II report should include, at a minimum, information on boundaries, integrity, and significance of the resource(s), and evaluation of the effect of the proposed project as well as any additional data necessary to evaluate eligibility.

The Stage II survey results will provide the lead agency with sufficient information to determine both the effects and ways to avoid or reduce the effects on any cultural resources. The data from the CRS should be incorporated into the RI/FS environmental analysis, and the reports should be appended to the document.

- Determination of Eligibility

The lead agency, in consultation with the SHPO, shall apply the criteria for inclusion described in Section 4.1.1 above in order to determine whether a cultural resource meets the criteria for inclusion on the National Register. If both the lead agency and the SHPO agree, the lead agency should prepare appropriate documentation according to the DOI regulations (see 36 CFR Part 63). This documentation should include the SHPO's written opinion regarding eligibility. The lead agency should transmit the documentation to the Keeper of the National Register. If a question exists or the lead agency and the SHPO do not agree on eligibility, the documentation should be forwarded to the Keeper for a determination of eligibility.

- Impact Evaluation

After the appropriate CRS studies have been accomplished, one of the following determinations of the effect of the proposed remedial activities on all National Register-listed and eligible resources identified in the project area of potential effects shall be made by the lead agency in consultation with the SHPO. An effect occurs when an undertaking may alter characteristics of the cultural resources that qualify it for inclusion in the National Register.

-- Determination of no effect

If the lead agency, in consultation with the SHPO, determines that the undertaking will have no effect on National Register-listed resources or on resources eligible for nomination on the National Register, then no further review is necessary.

-- Determination of no adverse effect

If there will be an effect on a resource which is listed or eligible for listing on the National Register, the lead agency, in consultation with the SHPO, shall determine the nature of the effect by applying the "Criteria of Adverse Effect" (see next section). If a determination of no adverse effect is made, the lead agency shall prepare adequate documentation for this determination for submittal to the ACHP (36 CFR section 800.5(d)).

Effects of an undertaking that would otherwise be found to be adverse may be considered to be not adverse when both the nature of the impact is limited and appropriate data recovery (see mitigation section below) is implemented (36 CFR section 800.9(c)). For example, a data recovery program may be applied to an archaeological site whose primary significance lies in its ability to yield information important to history. This data recovery can take the form of preserving the significant information by professional excavation, reporting, and curation of archaeological materials.

-- Determination of adverse effect

An adverse effect is an effect on a historic property on or eligible for the National Register that may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects (36 CFR section 800.9(b)) include, but are not limited to, the following:

- physical destruction, damage, or alteration of all or part of the property;
- isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

- neglect of the property resulting in its deterioration or destruction; and

- transfer, lease, or sale of the property.

If it is determined that a remedial activity conducted off site has the potential to adversely affect a National Register-listed or eligible resource, or if the ACHP objects to a determination of no adverse effect, the lead agency shall prepare the required documentation (36 CFR section 800.8) (it is strongly recommended that the lead agency also comply with these documentation requirements, where possible, for on-site activities). This documentation will contain the lead agency's proposals to avoid or mitigate the adverse effects of a project upon a National Register-listed or eligible resource and shall be submitted to the ACHP. The ACHP may consult with the lead agency, the SHPO, and other interested parties in examining all feasible alternatives that would avoid adverse effects on these resources. Generally, the formal consultation should result in an agreement on the treatment of any adverse effects.

When agreement is reached on how the effects will be taken into account, the ACHP may participate in the preparation or approval of a Memorandum of Agreement (MOA) reflecting such agreement. The lead agency shall not take or authorize any action having an adverse effect on such cultural resources until all reasonable alternatives have been examined. Of course, for on-site actions, the lead agency must meet the substantive requirements to avoid or to mitigate potential project effects. For off-site actions, the lead agency shall not take the action until the ACHP has accepted an MOA or has commented on the report.

- Mitigation

Where the lead agency determines that it is not feasible to implement an alternative to avoid an effect on a National Register-listed or eligible resource, measures to minimize the potential effects should be developed in consultation with the SHPO, the ACHP and, where appropriate, other parties. A mitigation plan outlining these measures should be developed. Where an adverse effect exists, this mitigation plan should be included in an MOA signed by the consulting parties.

If a mitigation plan is developed, it shall be based on engineering, environmental, economic, and resource preservation concerns. Mitigation may take the form of avoidance through cost-effective redesign, reduction of the direct impact on the resource, and/or data recovery prior to construction.

4.1.4.2 Remedial Design

The remedial design process should provide for the scheduling and funding of the development and implementation of a detailed cultural resources mitigation plan (e.g., data recovery, construction constraints, etc.). The lead agency will be responsible for obtaining final SHPO and ACHP approval of any mitigation plan that involves alteration or destruction of identified National Register or eligible resources located off site. In general, it will be advantageous to complete data recovery activities prior to construction; however, provisions may occasionally be necessary to schedule such work to occur during construction.

4.1.5 Documentation

Compliance with NHPA requirements should be documented in the RI/FS report, describing, as appropriate, the determination of whether cultural resources are or are not present; the results of the CRS process and recommendations on the eligibility of the identified cultural resources for the National Register; the impact, if any, on such resources; and the associated mitigation measures to minimize potential "no adverse" or "adverse" effects.

When cultural resources are present, the ROD should identify the NHPA as an ARAR. For each alternative, the ROD should identify whether the alternative will comply with substantive NHPA requirements. For the selected remedy, the ROD should also include a brief statement describing what compliance with NHPA entails, e.g., that there will be no impact on cultural resources or what mitigation measures will be required.

4.2 ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT

The Archeological and Historic Preservation Act, 16 USC §469a-1, provides for the preservation of historical and archeological data that might otherwise be lost as a result of dam construction or alterations of the terrain. If activities in connection with any Federal construction project or Federally approved project may cause irreparable loss to significant scientific, prehistorical, or archeological data, the Act requires the agency undertaking that project to preserve the data or request the DOI to do so. This Act differs from the NHPA in that it encompasses a broader range of resources than those listed on the National Register and mandates only the preservation of the data (including analysis and publication).

4.3 ENDANGERED SPECIES ACT

4.3.1 Overview of the Endangered Species Act

The Endangered Species Act (ESA) of 1973, 16 USC §1531 et seq., provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The ESA defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range...." In addition, the ESA defines a threatened species as "any species which is likely to become an endangered species within the foreseeable future...." Further, the ESA provides for the designation of critical habitats, that are "specific areas within the geographical area occupied by the [endangered or threatened] species... on which are found those physical or biological features essential to the conservation of the species..."

Section 7(a) of the ESA requires Federal agencies, in consultation with the DOI and the National Marine Fisheries Service (NMFS), as appropriate, to ensure that the actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their critical habitats. Actions that might jeopardize listed species include direct and indirect effects, as well as the cumulative effects of other actions that are interrelated or interdependent with the proposed action.

Substantive compliance with the ESA means that the lead agency must identify whether a threatened or endangered species, or its critical habitat, will be affected by a proposed response action. If so, the agency must avoid the action or take appropriate mitigation measures so that the action does not affect the species or its critical habitat. If, at any point, the conclusion is reached that endangered species are not present or will not be affected, no further action is required.

Section 7 of the ESA requires consultation to determine whether the project is likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of a critical habitat. The lead agency should consult with the U.S. Fish and Wildlife Service (FWS) for terrestrial and freshwater species and the NMFS for marine species. Such consultation is required for off-site actions and is strongly recommended for cleanup actions conducted entirely on site, since such procedures were designed to ensure compliance with the ESA.[7]

4.3.2 ESA Review Procedures

4.3.2.1 Determining Whether Endangered Species Are Present

As early as possible in the remedial planning process, the lead agency should request a determination from the appropriate office(s) of the FWS and the NMFS on whether there are listed or proposed species or critical habitats present in the study area. A written request for information is required for off site actions and is strongly recommended for on-site activities. The location and type of project and a map of the planning area for each project should be included with the letters to the FWS and NMFS, as appropriate.

The FWS and NMFS are required to respond within 30 days of the receipt of such a request. If the FWS and NMFS determine that no listed or proposed species are present in the study area, no further consultation with these agencies is required.

Informal consultation under the ESA can also be conducted on many projects at one time. In addition, certain FWS and NMFS regional offices may provide lists of Federal endangered and threatened species and critical habitats on a State-by-State basis that can help to expedite the review process. Requests for bulk informal consultations and State species lists should be forwarded to the respective FWS regional office. These lists, assuming they are kept current, can provide an early screening and may result in a determination by the lead agency that no endangered species or critical habitats are present, and no further actions or investigations would be required.

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[7] Procedures for interagency cooperation concerning endangered species are found in 50 CFR Part 402.

4.3.2.2 Biological Assessment

A determination, during informal consultation, that an endangered or threatened species or critical habitat is present and may be impacted by site activities will necessitate preparation of a biological assessment (BA). The intent of the BA is to examine any possible impacts of a proposed action upon the affected species or critical habitats in the project area. The determination of possible project impacts should be completed within 180 days after the BA is initiated and should be made during the RI/FS process. To support this determination, the BA should include the following, as appropriate:

- Views of wildlife experts;
- Review of literature and field data;
- Results of on-site inspection of the total area affected (both on site and off site, as appropriate) to determine the presence or absence of affected species and/or critical habitat (conducted in accordance with the site's Health and Safety Plan);
- Analysis of the likely effects of the proposed project on the species in terms of individuals (short-term impacts) and populations (long-term impacts);
- Analysis of alternative actions to protect endangered species; and
- Description of the study methodology.

Prior to the implementation of any of these tasks, it is recommended that the specific scope of the BA be approved by the appropriate FWS or NMFS office(s).

Based upon the BA conclusions, the lead agency, in consultation with the FWS or NMFS, must determine the next appropriate action. The following consultation requirements described below and in Sections 4.3.2.3. and 4.3.2.4. are not required for on-site actions, but are strongly recommended.

- If the lead agency determines the project will not affect any listed or proposed species, the lead agency will supply the appropriate area manager or regional director of the FWS or NMFS with that determination and the completed BA. Unless FWS or

NMFS disagrees with the determination of no effect, the lead agency's endangered species responsibilities under §7 of the ESA have been met.

- If the lead agency anticipates that the project will affect a listed or proposed species, the lead agency must initiate the formal consultation process with the appropriate regional office(s) of FWS or NMFS. No action can be approved until the formal consultation process is completed.

If the lead agency and the Federal wildlife management agencies disagree about the effect of an action on an endangered species, the formal consultation process (i.e., biological opinion) must be initiated.

4.3.2.3 Biological Opinion (Formal Consultation)

The lead agency initiates formal consultation by a written request to FWS or NMFS which must include:

- a description of the action to be considered;
- a description of the specific area that may be affected by the action;
- a description of listed species or critical habitat that may be affected by the action, and of how they will be affected, and an analysis of any cumulative effects; and
- relevant available reports and other information on the action, or affected species or habitats.

The FWS or NMFS is required to conclude formal consultation within 90 days, although that time can be extended by mutual consent of the Federal agencies involved. Within 45 days of the conclusion of formal consultation, a biological opinion (BO) must be completed. The BO can conclude that:

- The proposed action is not likely to jeopardize or adversely affect the species or critical habitat. No further action is required and the proposed project can proceed.
- The proposed action is likely to jeopardize or adversely affect an endangered species or critical habitat. In this case, the project must be stopped unless alternatives to avoid or mitigate any impact to the species or critical habitat can be found, or an exemption is granted by the Endangered Species Committee through formal consultation procedures.

4.3.2.4 Application for Exemptions

The procedures for applying for ESA exemptions are found in 50 CFR Parts 450, 451, 452, and 453 and are summarized below.

If the BO results in a determination of adverse effect (jeopardy to species or adverse modification of habitat), and there are no reasonable or prudent measures that can be taken to avoid or mitigate impacts from off-site activities, the lead agency may submit an application for exemption from the §7(a)(2) requirement. The application must be sent to the Secretary of the Interior or Secretary of Commerce, as appropriate, within 90 days following the termination of the consultation process. The exemption application must contain the following information (similar information should be provided for on-site action):

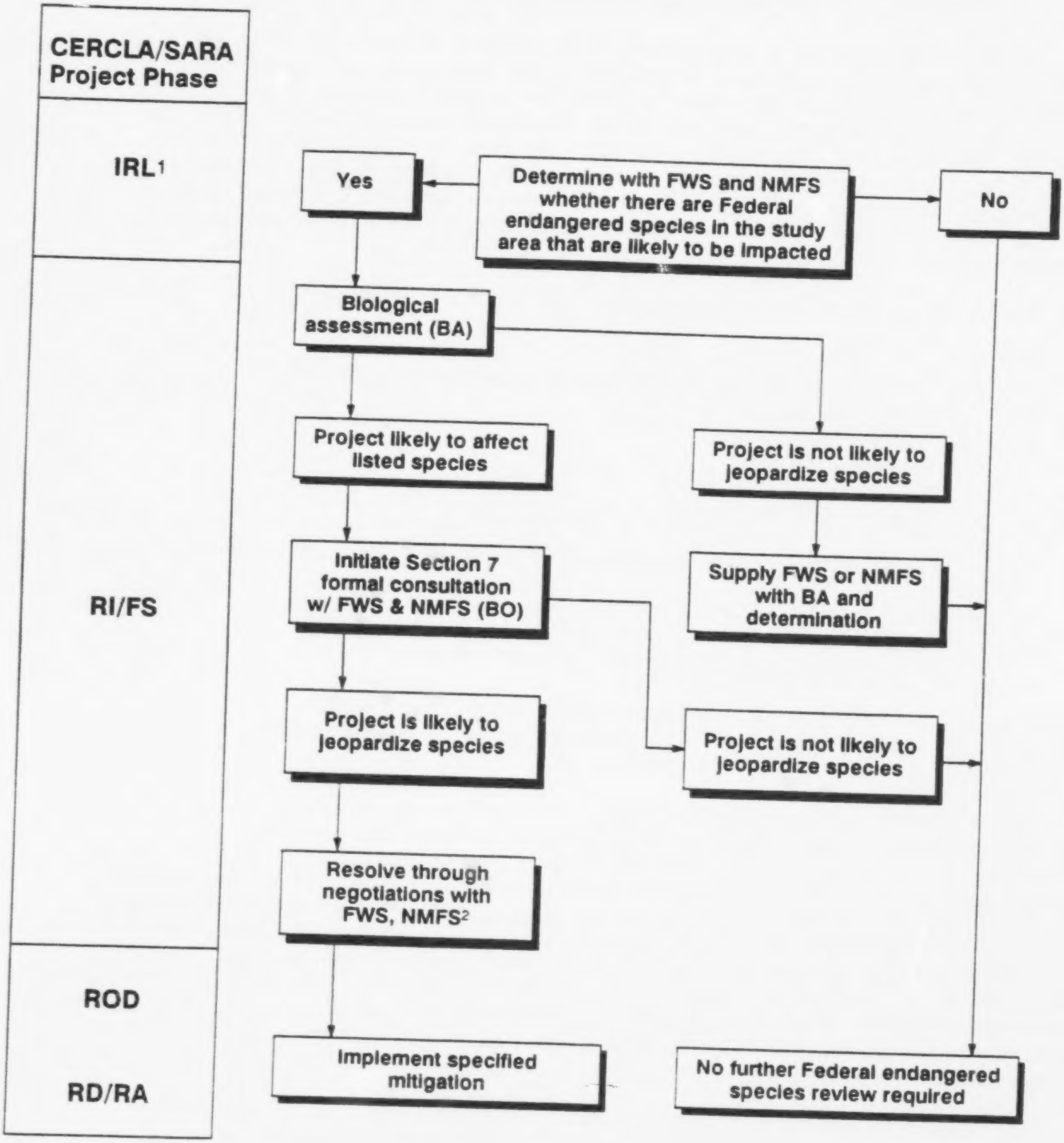
- Comprehensive description of the proposed agency action;
- Description of the consultation process carried out under the Act;
- Copy of the BA;
- Copy of the BO;
- Description of the alternatives considered;
- Statement describing why the proposed agency action cannot be altered or modified to avoid violating §7(a)(2) of the Act; and
- Description of resources committed by the Federal agency, if any, to the proposed action subsequent to the initiation of consultation.

For off-site actions, the Secretary will conduct a threshold review of the application and determine, within 20 days, whether the application qualifies for consideration by the Endangered Species Committee. If it is determined that all the consultation requirements have been met by the agency, the Secretary will submit a report to the Endangered Species Committee within 140 days. The Endangered Species Committee is composed of: the Secretary of the Interior, the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Council of Economic Advisors, the Administrator of the Environmental Protection Agency, the Administrator of the National Oceanic and Atmospheric Administration, and a person from each affected State as determined by the Secretary.

It should be noted that applying for an ESA Exemption is a lengthy and detailed process involving hearings before an Administrative Law Judge. The process has been carried out on only a few cases in the history of the Act.

Exhibit 4–2

Endangered Species Review Under Endangered Species Act and Remedy Selection Under CERCLA


CERCLA/SARA Project Phase
IRL1
RI/FS
ROD
RD/RA
Yes
Determine with FWS and NMFS whether there are Federal endangered species in the study area that are likely to be impacted
No
Biological assessment (BA)
Project likely to affect listed species
Project is not likely to jeopardize species
Initiate Section 7 formal consultation w/ FWS & NMFS (BO)
Supply FWS or NMFS with BA and determination
Project is likely to jeopardize species
Project is not likely to jeopardize species
Resolve through negotiations with FWS, NMFS2
Implement specified mitigation
No further Federal endangered species review required

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[1] *The Interagency Review Letter (IRL), formerly known as the A–95 Clearing House Letter, is the scoping phase of the process.*

[2] *Exemption process is available if no mitigation is possible.*

4.3.3 Documentation

Compliance with ESA requirements should be documented in the RI/FS report, describing, as appropriate, the determination of whether endangered species or a critical habitat are or are not present; the results of the BA;the results of the formal consultation or BO; the impact, if any, of the CERCLA action; and the associated mitigation measures to minimize impacts.

When an endangered species or critical habitat is present, the ROD should identify the ESA as an ARAR. For each alternative, the ROD should state whether the alternative will comply with substantive ESA requirements. For the selected remedy, the ROD should also include a brief statement describing what compliance with ESA entails, e.g., that there will be no impact on the endangered species or what mitigation measures will be required.

4.3.4 Discussion

Provided that appropriate consultation is initiated in a timely manner, it is unlikely that the provisions of the ESA will cause a delay in a remedial project. Moreover, because of the nature of the remedial program (i.e., the cleanup of environmental contamination), it is very unlikely that the ESA review process will result in a project being delayed or stopped because of adverse impacts to endangered or threatened species or critical habitats. However, changes in methods or timing may be necessary to avoid adverse impacts (e.g., timing the action to avoid the mating season of a species). The vast majority of projects will not require anything further than informal consultation. However, if serious impacts could result from a remedial action, the provisions of natural resource damage assessments and claims of CERCLA/SARA (i.e., 43 CFR Part 11) would likely be initiated by the appropriate Trustee. In such cases, an agreement may be reached with the respective Trustee that will allow appropriate remedial action "operable units" to proceed to ensure the protection of public health.

4.4 WILD AND SCENIC RIVERS ACT

4.4.1 Overview of the Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (WSRA), 16 USC §1271, et seq., establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the National Rivers Inventory to be studied for inclusion in the National System. In accordance with §7 of the Act, a Federal agency may not assist through grant, loan, license, or otherwise, the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, and natural values for which a river on the National System or Study River on the National Rivers Inventory was established. The Act also covers indirect effects from construction of water resources projects below or above rivers or their tributaries that are in the National System or under study on the National Rivers Inventory, such as a dam on a tributary and construction or development on adjacent shorelines. If the project(s) would affect the free-flow characteristic of a designated river or unreasonably diminish the scenic, recreational and fish and wildlife values present in the area, such activities should be undertaken in a manner that would minimize adverse impacts, and should be developed in consultation with the DOI (National Park Service) and the Department of Agriculture (DOA).

If, at any point, the conclusion is reached that the CERCLA activity will not impact a designated river or is not a water resource project, no further action is required.

The Act is administered by the DOI and the DOA. Potentially applicable requirements are found in §7 of the Act. The DOA has promulgated implementing procedures at 36 CFR Part 297 for rivers within its jurisdiction.

4.4.2 Summary of Wild and Scenic Rivers ARARS for CERCLA Actions

The WSRA requires that the lead agency:

- Identify any rivers within the National Wild and Scenic Rivers System or Study River on the National Rivers Inventory within a Federal project area;
- Determine if a project will involve construction of any water resources project that could affect the free-flowing characteristics, the scenic, or natural values of a designated river; and
- Not authorize any water resources project or any other project that will directly or indirectly impact any designated river without notifying the Secretary of the Interior or Chief of the Forest Service (whoever has jurisdiction) in writing at least 60 days prior to the date of the proposed actions.

A water resources project[8] is defined as a dam, water conduit, reservoir, powerhouse, transmission line, discharge to waters, or other project works under the Federal Powers Act or other construction of developments that would affect the free-flowing characteristics or scenic, recreational, or fish and wildlife values of a Wild and Scenic River or Study River. The statute further provides that the Secretary of Agriculture or Secretary of the Interior will make a determination as to the effect of the project on the designated river and will either consent or not consent to the project. If consent is denied, either Secretary may recommend measures to eliminate adverse effects.

If on-site cleanup activities involve the potential to impact a designated river, the lead agency is strongly encouraged to notify and consult

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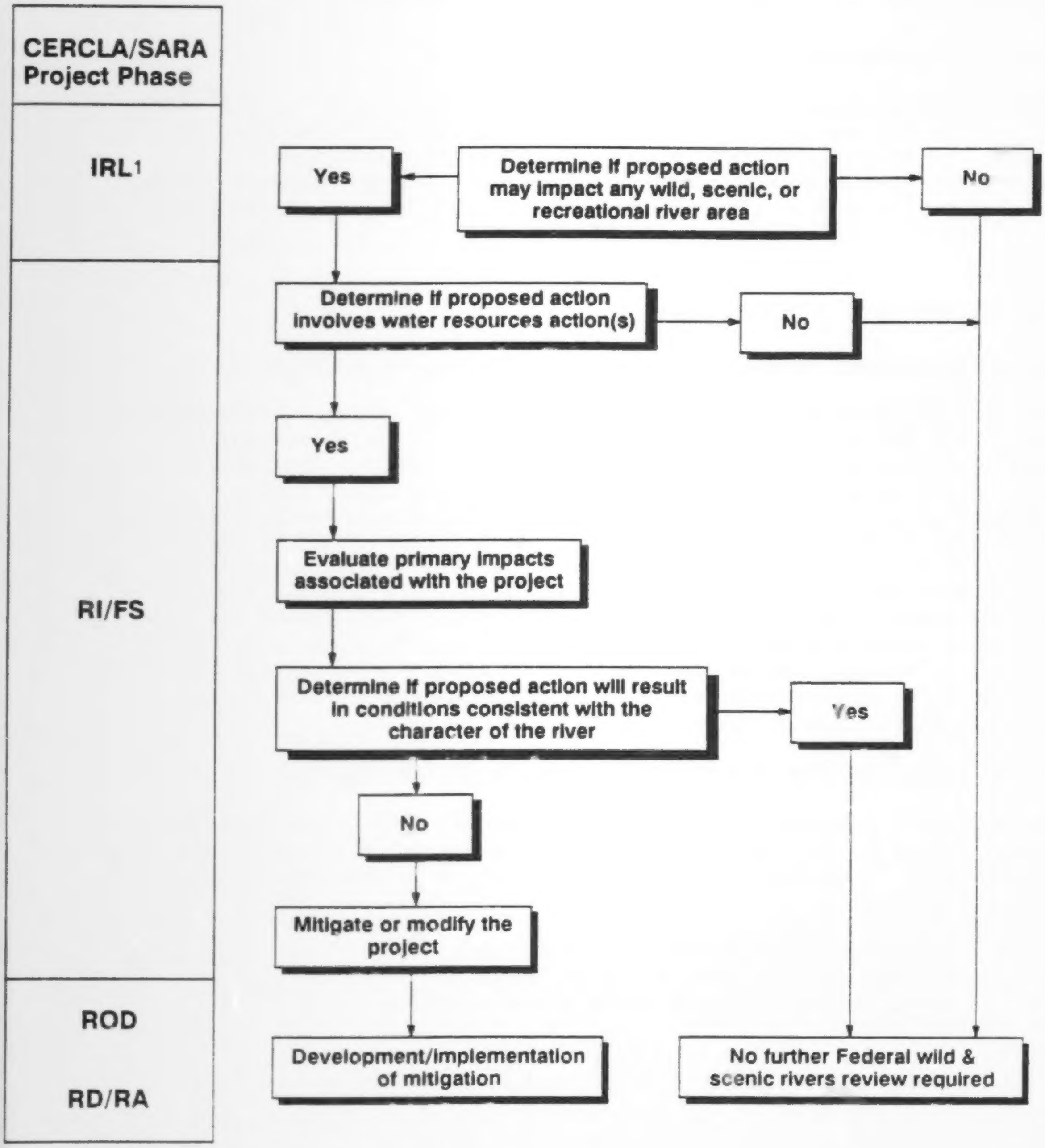
[8] Note that the DOI definition includes activities such as dredging, installation of rip-rap, and shoreline development (DOI Solicitors Memorandum, February 7, 1969).

Exhibit 4–3

Wild and Scenic Rivers Review Under Wild and Scenic Rivers Act and Remedy Selection Under CERCLA


CERCLA/SARA Project Phase
IRL[1]
RI/FS
ROD
RD/RA
Determine if proposed action may impact any wild, scenic, or recreational river area
Yes
No
Determine if proposed action involves water resources action(s)
No
Yes
Evaluate primary impacts associated with the project
Determine if proposed action will result in conditions consistent with the character of the river
Yes
No
Mitigate or modify the project
Development/implementation of mitigation
No further Federal wild & scenic rivers review required

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[1] *The Interagency Review Letter (IRL), formerly known as the A–95 Clearing House Letter, is the scoping phase of the process.*

with DOI and DOA in determining whether the project is considered a water resources development project, whether to proceed with the activity, and how to eliminate direct and adverse effects. For off-site activities, the lead agency must notify DOI or DOA and obtain consent before implementing an action that would directly and adversely impact a designated river.

4.4.3 Documentation

When CERCLA activities potentially involve a designated river, the RI/FS should describe the results of the analysis of impacts and discussions with DOI or DOA. For each alternative, the ROD should state whether the alternative will meet substantive WSRA requirements. For the selected remedy, the ROD should also include a brief statement describing what compliance will entail.

4.5 FISH AND WILDLIFE COORDINATION ACT

4.5.1 Overview of the Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act, 16 USC §661 et seq., was enacted to protect fish and wildlife when Federal actions result in the control or structural modification of a natural stream or body of water. The statute requires Federal agencies to take into consideration the effect that water-related projects would have upon fish and wildlife and then take action to prevent loss or damage to these resources. Such action should be viewed in the context of obtaining maximum overall project benefits, i.e., cleaning up the site. Under §662 of the Act, consultation is required with the FWS or NMFS and the Wildlife Resources Agency of the State if alteration of the water resource would occur as a result of off-site remedial activities. Consultation is strongly recommended for on-site actions. The purpose of consultation is to develop measures to prevent, mitigate or compensate for project-related losses to fish and wildlife.

4.5.2 Summary of Fish and Wildlife ARARS for CERCLA Actions

In planning a response action, the lead agency must determine whether the action will result in the control or structural modification of a body of water. The types of actions that would fall under the jurisdiction of the Act include:

- Discharges of pollutants including industrial, mining, and municipal wastes or dredge and fill material into a body of water or wetlands;[9] and
- Projects involving construction of dams, levees, impoundments, stream relocation, and water diversion structures.

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[9] The requirements to comply with the Fish and Wildlife Coordination Act are contained in EPA's NPDES permit regulations in 40 CFR section 122.49.

If a response action would involve any of these activities, the lead agency must develop measures to prevent, mitigate or compensate for project-related losses of fish and wildlife resources.

The statute requires consultation with the FWS and the affected State for developing measures to protect wildlife. Consultation can be carried out with the field offices of the FWS. Consultation is required for off-site response actions and is recommended for cleanup actions taking place entirely on-site.

4.5.3 Documentation

The RI/FS report should describe any reports or recommendations of the FWS. When control or modification of a water body is involved, the ROD should state whether each alternative will meet substantive Fish and Wildlife Coordination Act ARARs, and should briefly describe requirements for the remedy selected, including the impacts, if any, of the response alternatives on wildlife and the mitigation measures that would be employed.

4.6 COASTAL ZONE MANAGEMENT ACT

4.6.1 Overview of the Coastal Zone Management Act

Section 307(c)(1) of the Coastal Zone Management Act (CZMA), 16 USC §1451 *et seq*., requires that Federal agencies conducting or supporting activities directly affecting the coastal zone conduct or support those activities in a manner that is consistent with approved State coastal zone management programs. A State coastal zone management program (developed under State law and guided by the CZMA) sets forth objectives, policies, and standards to guide public and private uses of lands and waters in the coastal zone. The State coastal zone management program must be approved by the Secretary of Commerce.

If a remedial activity will affect (adversely or not adversely) the coastal zone of a State with an approved coastal zone management program, the lead agency is required to determine whether the activity will be consistent, to the maximum extent practicable (CZMA §307(c)), with the State's coastal zone management program and must notify the State of its determination. (If an off-site remedial activity requires a Federal permit, which will not occur often, the State must certify that the proposed activity complies with its coastal zone management plan [CZMA §307(c)(3)].)

Copies of State management plans may be obtained from the coastal commission of each State. All coastal States have approved State management plans except for Georgia, Texas, Ohio, Indiana, Illinois, and Minnesota.

The term "coastal zone" is identified in the Act as "the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal States, and includes islands, transitional and intertidal areas, salt marshes, to the international boundary between the United States and Canada and in other areas, seaward to the outer limit of the U.S. territorial sea. The zone extends inland from the shorelines only to the extent necessary to control shorelands, the uses of that have a direct and significant impact on the coastal waters."

4.6.2 Summary of Potential Coastal Zone Management Act ARARS for CERCLA Activities

To comply with the CZMA, the lead agency should identify remedial activities that would directly affect the coastal zone and then undertake the following:

- Review the State coastal zone management plan and determine whether remedial activities would be consistent with the plan (if a Federal permit(s) required, the appropriate State coastal zone management authority would make such a determination);

- Prepare a consistency determination (or its equivalent for on-site activities) that includes:

  -- A detailed description of the remedial action, its associative facilities, and coastal zone effects;

  -- A brief statement on how the remedial action, to the maximum extent practicable, would be consistent with the State coastal zone management plan; and

  -- Data to support the consistency determination.

4.6.2.1 On-site activities

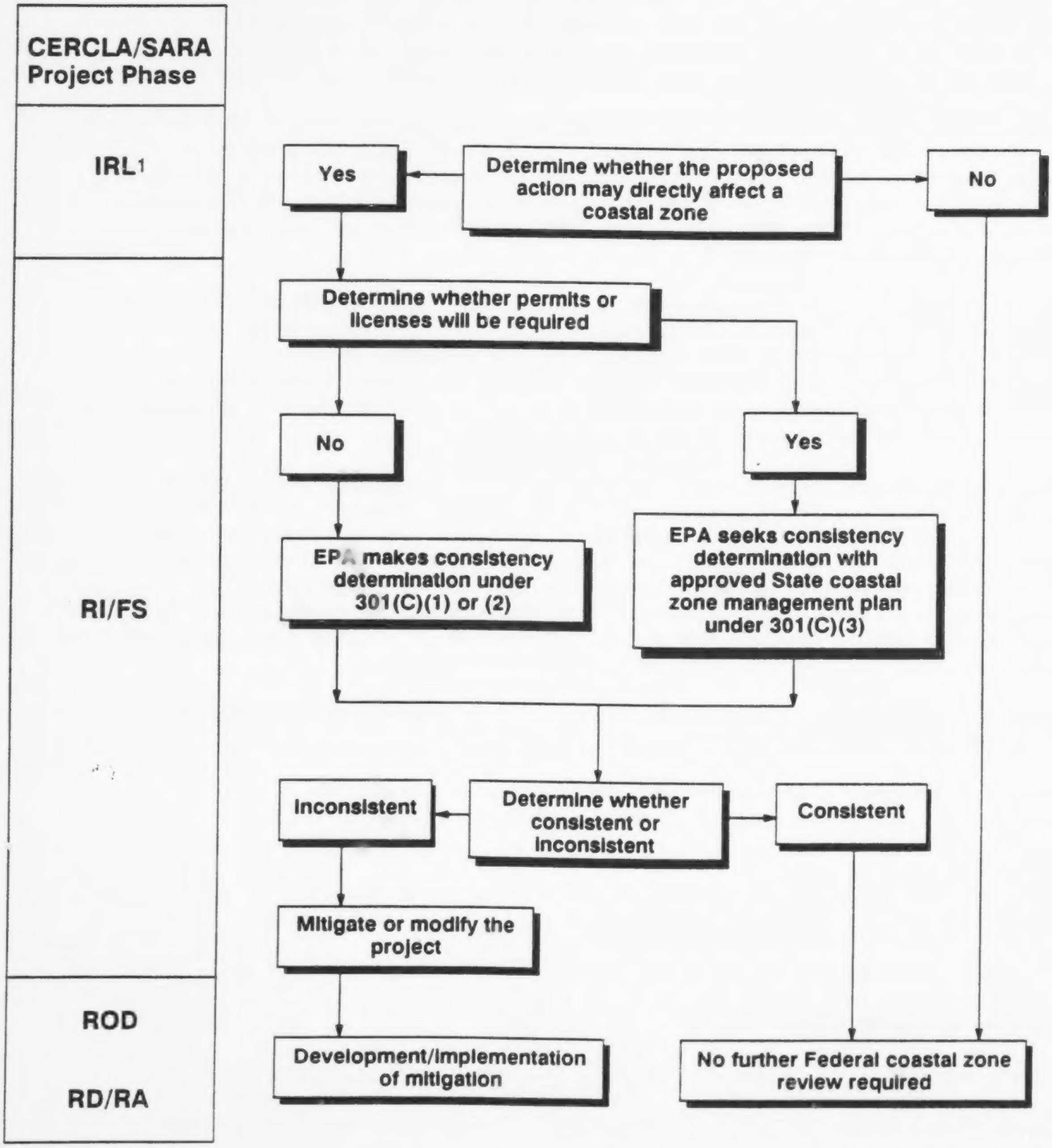
Under CERCLA, on-site actions are not subject to administrative review processes. However, it is the lead agency's responsibility to ensure that on-site actions will comply with all of the substantive requirements under a State's coastal zone management plan. The lead agency should document that substantive requirements will be met by developing an analysis similar to a consistency determination. The lead agency is strongly encouraged to consult with the State coastal zone management agency in determining whether substantive requirements will be met.

4.6.2.2 Off-Site Activities

For off-site remedial actions, the lead agency should notify the responsible State agency of its consistency determination as early as possible in the planning process (when sufficient data is available) but before the lead agency reaches a significant point in the decision making, i.e., at least

Exhibit 4–4

Coastal Zone Review Under Coastal Zone Act and Remedy Selection Under CERCLA


CERCLA/SARA Project Phase
IRL1
RI/FS
ROD
RD/RA
Determine whether the proposed action may directly affect a coastal zone
Yes
No
Determine whether permits or licenses will be required
No
Yes
EPA makes consistency determination under 301(C)(1) or (2)
EPA seeks consistency determination with approved State coastal zone management plan under 301(C)(3)
Determine whether consistent or inconsistent
Inconsistent
Consistent
Mitigate or modify the project
Development/implementation of mitigation
No further Federal coastal zone review required

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[1] *The Interagency Review Letter (IRL), formerly known as the A–95 Clearing House Letter, is the scoping phase of the process.*

90 days before final approval of the remedial action. The consistency determination is a brief statement indicating how the remedial action will be undertaken in a manner consistent with the State's coastal zone management program. The consistency determination must include a detailed description of the proposed remedial action, its associated facilities and their combined coastal effects, as well as data and information to support the Federal agency's conclusion. The consistency determination need not follow a particular format as long as all the substantive information is included.

State agencies are required to respond to a consistency determination within 45 days from receipt of the notice. If a State fails to provide a response, the lead agency should assume State agreement. An off-site remedial activity may not be taken sooner than 90 days from issuance of a consistency determination unless both the lead agency and the responsible State agency agree to an alternative period.

If the State agency disagrees with a consistency determination, the State will respond with its reasons for disagreeing and provide supporting documentation. The response will address how the activity will be inconsistent with specific elements of the coastal zone management plan and alternative measures that can be undertaken to allow the activity to proceed consistent with the management program.

When disagreement occurs, the lead agency and responsible State agency should utilize the remaining portion of the 90-day notification period to resolve their differences. If disagreement continues, the 90-day period may be suspended until the disagreement is resolved. However, the lead agency would not have to delay or abandon implementation of the response action identified by the State as inconsistent with the coastal program as long as the lead agency maintains that the action is consistent, to the maximum extent practicable, with the coastal program.

There are a number of procedures for resolving State/Federal conflicts. These include:

- Informal discussions between the parties, assisted by the Department of Commerce, Office of Coastal Zone Management;
- Mediation by the Secretary of Commerce with public hearing; and
- Judicial review by either party.

4.6.3 Documentation

When remedial activities will directly affect a coastal zone, the RI/FS should describe compliance with the State's CZMA and should incorporate the consistency determination, or its equivalent. The ROD should identify the CZMA as an ARAR and state whether each alternative will meet CZMA requirements.

4.7 WILDERNESS ACT

The Wilderness Act, 16 USC §§1131 et seq., creates the National Wilderness Preservation System. The intent of the law is to administer units of this System (i.e., Wilderness Areas) in order to preserve their wilderness character and to leave them unimpaired for future use as wilderness.

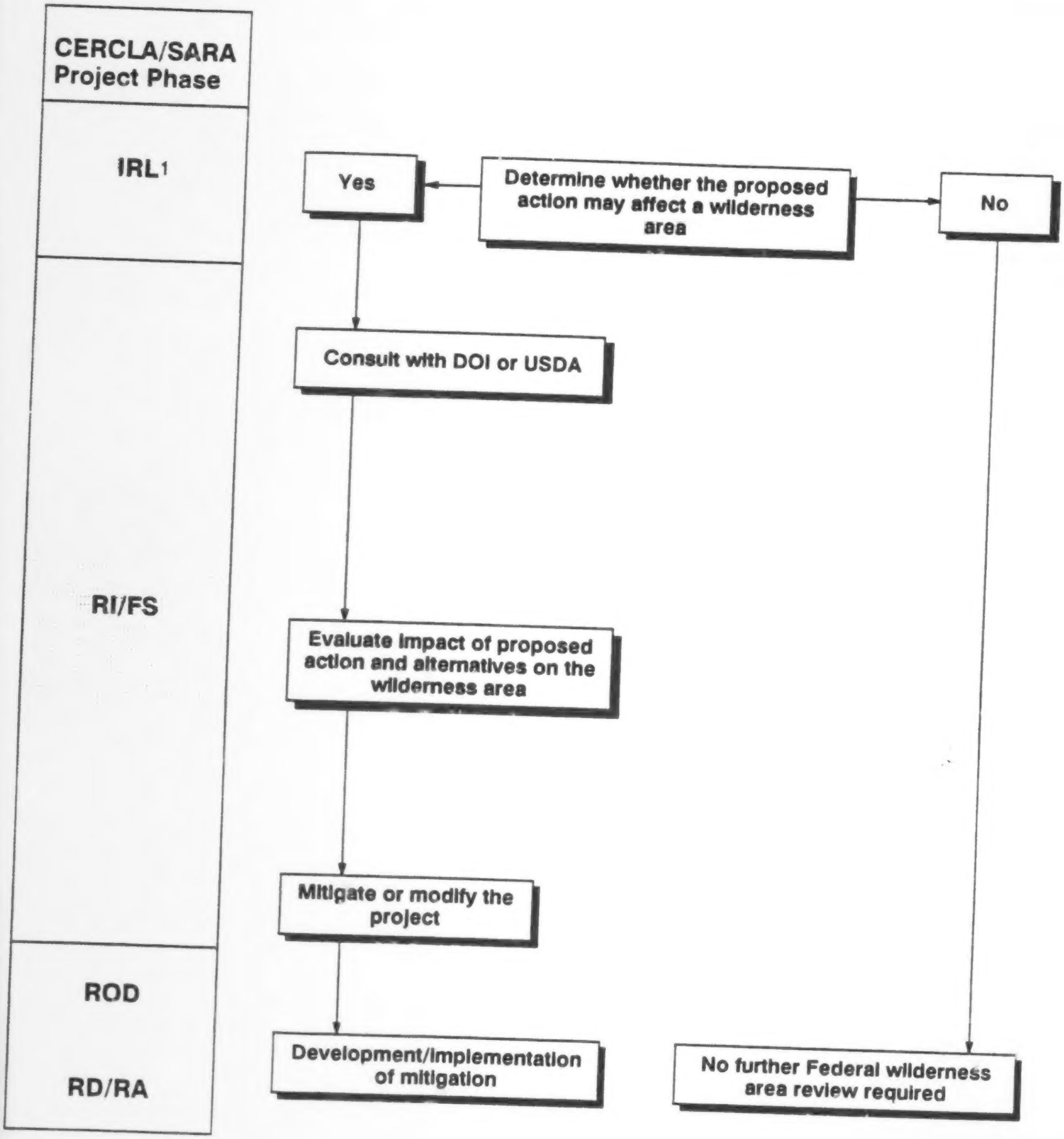
In complying with the Wilderness Act, the RPM must first identify whether proposed remedial activities will impact designated wilderness areas (see 16 USC §1132). The Regional NEPA Compliance staff should be able to identify these areas. If a proposed remedial activity will impact a wilderness area, the RPM should consult with the NEPA Compliance staff and the administering agency to determine the prohibitions on activities in the wilderness area and whether exemptions to these prohibitions are necessary and can be obtained. For example, the RPM may have to implement a remedial activity that uses only temporary structures and roads, or certain kinds of equipment.

4.7.1 Documentation

When remedial activities will impact a wilderness area, the RI/FS should describe compliance with the Wilderness Act. The ROD should identify the Wilderness Act as an ARAR and state whether each alterative will meet the ARAR. For the selected remedy, the ROD should also briefly state what compliance with the Wilderness Act will entail.

Exhibit 4–5

Wilderness Area Review Under Wilderness Area Act and Remedy Selection Under CERCLA


CERCLA/SARA Project Phase
IRL[1]
RI/FS
ROD
RD/RA
Yes
Determine whether the proposed action may affect a wilderness area
No
Consult with DOI or USDA
Evaluate impact of proposed action and alternatives on the wilderness area
Mitigate or modify the project
Development/implementation of mitigation
No further Federal wilderness area review required

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[1] *The Interagency Review Letter (IRL), formerly known as the A–95 Clearing House Letter, is the scoping phase of the process.*

CHAPTER 5

STANDARDS, ADVISORIES, AND GUIDANCE FOR THE MANAGEMENT OF RADIOACTIVE WASTE

5.0 OVERVIEW

Very few applicable standards exist for the cleanup of radioactively contaminated sites and buildings. The principal exceptions are health and environmental protection standards for mill tailings under the Uranium Mill Tailings Radiation Control Act (see Section 5.1.1.4 of this chapter). Other standards described here are likely only to be relevant and appropriate because of the jurisdictional framework of the radiation statutes. EPA is developing standards and guidance for residual radioactivity for cleanup of sites where radionuclides have been used.[1] Such standards, when promulgated, will be potentially applicable or relevant and appropriate requirements (ARARs) for CERCLA sites.

This chapter provides guidance on the potential applicability or relevance and appropriateness of standards for management of mill tailings and on other radiation standards that may be relevant and appropriate to CERCLA actions. Determinations of what is an ARAR will be based on site-specific evaluations.

Several agencies have authority over the cleanup of sites contaminated with radioactive materials. Each agency has a variety of general regulations that could be applicable to sites within the agency's purview, or may be relevant and appropriate to CERCLA sites with similar radioactive contamination. In addition, there are a variety of radiation advisories and guidance that, while not ARARs, may be considered when developing protective remedies at CERCLA sites.

The primary agencies that have regulatory programs for the cleanup of radioactively contaminated sites and buildings are EPA, the Nuclear Regulatory Commission (NRC), the Department of Energy (DOE), and States. Several other Federal agencies also have regulatory programs for radioactive waste, but these programs generally are more narrow in scope than those of EPA, NRC, and DOE. In addition, a few non-government, scientific organizations issue important advisories and guidance related to radioactive waste management. Briefly, the main functions and areas of jurisdiction of all of these organizations are as follows:

- EPA's authority to protect public health and the environment from adverse effects of radiation exposure is derived from several statutes, including the Atomic Energy Act, the Clean Air Act, the Uranium Mill Tailings Radiation Control Act (UMTRCA), the Nuclear Waste Policy Act, RCRA, and CERCLA. The Agency's major responsibilities in the radiation area are to establish

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[1] Advance Notice of Proposed Rulemaking, 51 FR 22264; also Regulatory Agenda 53 FR 14365, Regulation Identification No. 2060-AB31.

Act, RCRA, and CERCLA. The Agency's major responsibilities in the radiation area are to establish Federal guidance and standards, assess new technologies, and monitor radiation in the environment. EPA also has lead responsibility in the Federal government for advising all Federal agencies on radiation standards. EPA's radiation standards apply to many different types of activities involving all types of radioactive material (i.e., source, byproduct, special nuclear, and naturally occurring and accelerator-produced radioactive material [NARM])[2]. For some EPA standards, implementation and enforcement responsibilities are vested in other agencies, such as the NRC and DOE.

- NRC licenses the possession and use of certain types of radioactive material at certain types of facilities. Specifically, the NRC is authorized to license source, byproduct, and special nuclear material; it is not authorized to license NARM, although NARM may be partially subject to NRC regulation when it is associated with material licensed by the NRC. Most of DOE's operations are exempt from NRC's licensing and regulatory requirements, as are certain Department of Defense (DOD) activities involving nuclear weapons and the use of nuclear reactors for military purposes.

- DOE is responsible for conducting or overseeing radioactive material operations at numerous government-owned/contractor- operated facilities. DOE is also responsible for managing several inactive sites that contain radioactive contamination, such as sites associated with the Formerly Utilized Sites Remedial Action Program (FUSRAP), the Uranium Mill Tailings Remedial Action Program (UMTRAP), the Grand Junction Remedial Action Program (GJAP), and the Surplus Facilities Management Program (SFMP). DOE is authorized to control all types of nuclear materials at sites within its jurisdiction.

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[2] Source material is defined as: (1) natural uranium, thorium, or any combination thereof; or (2) ores that contain 0.05 percent or more (by weight) uranium or thorium. Byproduct material is: (1) any material made radioactive by exposure to radiation in the process of producing or using special nuclear material; or (2) the wastes produced by the extraction or concentration of uranium or thorium from ore (i.e., uranium or thorium mill tailings). Special nuclear material is defined as plutonium or uranium enriched in the U-235 or U-233 isotope. NARM includes: (1) a variety of naturally occurring radionuclides other than uranium or thorium, such as radium in discrete sources or wastes from mineral extraction industries; or (2) a variety of accelerator-produced radionuclides mostly used in medicine and in research.

- Other Federal agencies with regulatory programs applicable to radioactive waste include the Department of Transportation (DOT) and DOD. DOT has issued regulations that set forth packaging, labeling, recordkeeping, and reporting requirements for the transport of nuclear material (see 49 CFR Parts 171 through 179). Most of DOD's radioactive waste management activities are regulated by the NRC and/or EPA (see Section 5.1.1.1 of this chapter). However, DOD has its own program for controlling wastes generated for certain nuclear weapon and reactor operations for military purposes. Other agencies, such as the Federal Emergency Management Agency (FEMA) and the Department of Interior (DOI), may also play a role in radioactive waste cleanups in certain cases.

- States have their own authority and regulations for radioactive material and waste. In addition, 29 States (Agreement States) have entered into agreements with NRC, under which NRC has relinquished to such States its regulatory authority over source, byproduct, and small quantities of special nuclear material. Both Agreement States and Nonagreement States also can regulate NARM. Such State-implemented regulations are potential ARARs.

- Non-government organizations include the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP). The NCRP was chartered by Congress to collect, analyze, develop, and disseminate information and recommendations about radiation protection and measurements. The ICRP's function is basically the same, but on an international level. Although neither NCRP nor ICRP have regulatory authority, their recommendations serve as the basis for nearly all Federal and State general (i.e., not source-specific) regulations on radiation protection.

The standards, advisories, and guidance of these various groups are designed primarily to be consistent with each other--they often overlap in scope and purpose and incorporate the same basic provisions. Nevertheless, there are important differences between programs in some cases. It is important for these differences to be well understood so that when more than one set of standards is potentially applicable or relevant and appropriate to the same CERCLA site, the lead agency will be able to evaluate which standards are actually applicable or relevant and appropriate. In general, decisions concerning what is an ARAR for a site contaminated with radioactive waste will depend on: (1) what type of site it is (defined by the radioactive constituents present and the functional operations that generated the site); (2) whose regulatory jurisdiction the site falls under; and (3) which regulation is most protective, or if relevant and appropriate, most appropriate given site conditions (see Chapter 1 in Part I for discussion of the applicable or relevant and appropriate determination).

The remainder of this chapter is divided into three main sections that separately address the programs of EPA, NRC, and DOE. State programs will be addressed in a separate part of this guidance manual. Within each section, the discussion focuses on decision criteria for determining when a regulation is an ARAR, or when and how advisories or guidance should be considered. Where appropriate, the discussion of each regulation also describes its relationship with other regulations in order to help identify where the regulations are in conflict and when one regulation should be used over another. For further information on radiation standards, advisories, and guidance, the lead agency should consult with EPA's Office of Radiation Programs (ORP) and/or Regional Radiation Representatives.

5.1 EPA PROGRAMS

EPA's regulatory program for radiation protection is very broad in scope, covering many activities involving all types of radioactive material. Section 5.1.1 discusses those EPA radiation regulations that could be ARARs, and Section 5.1.2 discusses those EPA advisories and guidance that may be useful to consider when cleaning up a radioactively contaminated site.

5.1.1 Potential EPA ARARs

Existing EPA regulations that may be applicable or relevant and appropriate to CERCLA responses at radioactively contaminated sites include those found in 40 CFR Parts 61, 141, 190, 192, and 440.[3]

5.1.1.1 40 CFR Part 61: National Emissions Standards for Hazardous Air Pollutants: Standards for Radionuclides

Pursuant to section 112 of the Clean Air Act, EPA has issued final standards for radionuclide emissions to the air as part of the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The radionuclide

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[3] EPA also has environmental standards (see 40 CFR Part 191) for the management and disposal of spent nuclear fuel, high-level, and transuranic wastes at facilities licensed by NRC or Agreement States, or at DOE-operated disposal sites. For most CERCLA sites, Part 191 is not likely to be pertinent and thus is not discussed here. However, where radium concentrations are high, it may be appropriate to treat the wastes as though they were transuranic; therefore, the requirements of 40 CFR Part 191 for the storage and disposal of these wastes may be relevant and appropriate. In addition, EPA's regulations in 40 CFR Part 227 establish criteria that will be used to evaluate a permit application to dispose of waste materials, including low-level radioactive waste, in the ocean. However, ocean dumping of low-level waste will (in most cases) not be an available waste disposal alternative because recent amendments to the Ocean Dumping Act require a joint resolution of Congress before EPA can issue a permit to dispose of low-level waste in the ocean. This requirement will make it very difficult to get approval to dispose of radioactive waste in this manner; therefore, it is unlikely that 40 CFR Part 227 will be pertinent to CERCLA responses.

NESHAPs are presented in five different subparts of Part 61; each subpart addresses a different source category. Subparts H and I, which address DOE, NRC-licensed, and non-DOE Federal facilities, are most likely to be applicable to CERCLA responses. The applicability or relevance and appropriateness of all of the radionuclide NESHAPs are discussed in Section 2.1.2.2 of Chapter 2 in this Part.

5.1.1.2 40 CFR Part 141: National Interim Primary Drinking Water Regulations

Under the authority of the Safe Drinking Water Act, EPA has promulgated maximum contaminant levels (MCLs) for radionuclides in community water systems. MCLs for radionuclides have been established in two forms: radioactivity concentration limits for certain alpha-emitting radionuclides and an annual dose limit for the ingestion of certain beta/gamma-emitting radionuclides. See Section 1.2.4.3 of Chapter 1 ("General Procedures for CERCLA Compliance With Other Statutes") and Section 4.2.1 of Chapter 4 ("Guidance for Compliance With Requirements of the Safe Drinking Water Act") of Part I of this guidance manual for a discussion on the relevance and appropriateness of drinking water MCLs.

5.1.1.3 40 CFR Part 190: Environmental Radiation Protection Standards for Nuclear Power Operations

These standards, which were promulgated under authority of the Atomic Energy Act, set limits on radiation doses received by members of the general public from operations within the uranium fuel cycle (i.e., uranium milling, production of uranium hexafluoride, uranium enrichment, uranium fuel fabrication, operations of nuclear power plants using uranium fuel, and reprocessing of spent fuel). Part 190 states that these operations shall be conducted in a manner that limits the annual dose received by any member of the public to 25 millirem to the whole body, 75 millirem to the thyroid, and 25 millirem to any other organ. The standards apply to normal operations and planned discharges, not cleanup actions like those conducted under CERCLA. Therefore, 40 CFR Part 190 would not be applicable to CERCLA responses. The standards, however, may be relevant and appropriate to releases of radionuclides and radiation during the cleanup of radioactively contaminated sites. When evaluating the relevance and appropriateness of 40 CFR Part 190, lead agencies should consider that the standards apply to releases to all media and all potential exposure pathways (including direct radiation), but do not apply to doses caused by radon and its daughters.

5.1.1.4 40 CFR Part 192: Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings

The Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) directed EPA to set standards to govern the stabilization, disposal, and control of uranium and thorium mill tailings. These standards have been promulgated in 40 CFR Part 192.

The standards in Part 192 apply to mill tailings at two categories of sites: (1) certain inactive uranium processing sites "designated" for remedial action under section 102 of UMTRCA;[4] and (2) commercial uranium and thorium processing sites licensed by the NRC or States (see Exhibit 5-1 for the standards for each type of site).[5] Subparts A (for long-term internment of wastes), B (for lands or buildings with unrestricted use), and C (supplemental standards) of Part 192 apply to the designated inactive sites. DOE is responsible for conducting necessary remedial actions at these sites in order to comply with EPA's standards. Subparts D (for uranium) and E (for thorium) of Part 192 apply to the licensed commercial sites. Enforcement responsibilities for these subparts are vested in the NRC or the State that licenses the sites. The regulations for designated inactive sites and licensed commercial sites are similar with respect to design standards for control of releases. However, there are no general ground-water, closure, and corrective action standards for the inactive sites. Ground-water standards for inactive sites have been proposed (52 FR 36000, September 24, 1987) and are expected to be promulgated in early 1989.[6]

Cleanup actions under CERCLA may be taken at licensed commercial uranium or thorium processing sites, and Subparts D and E are potentially applicable for any CERCLA actions taken at these sites.[7] Part 192 also may be relevant and appropriate for remedial actions at other CERCLA sites that contain materials other than, but sufficiently similar to, uranium and thorium mill tailings (i.e., radium components of copper, zinc, aluminum and other ore-processing residues, contaminated soil, or any other waste containing more than 5 picocuries/gram of radium). The subsections that follow provide additional discussion on how these standards could be ARARs. For further guidance on this subject, lead agencies should consult with EPA's Office of Emergency and Remedial Response (OERR), ORP, and Regional Radiation Representatives. Lead agencies should also coordinate with OERR and the Office of Solid Waste (OSW) when developing ground-water protection standards at uranium and thorium mill tailings sites.

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[4] Title I, section 102, of UMTRCA requires DOE to complete remedial action at 22 specifically named (i.e., designated) inactive sites. It also authorizes DOE to designate any other processing site in the U.S. that requires remedial action in order to protect the public health, safety, and environment. DOE has designated two additional sites for remedial action under this authority.

[5] For licensed sites, NRC or State requirements would also apply, and the NRC and appropriate State should be consulted.

[6] Under UMTRCA §108(a)(3), DOE must meet the proposed standards until EPA finalizes the rule.

[7] In general, the standards in Subparts A, B, and C are applicable for cleanup actions conducted by DOE at the designated inactive uranium processing sites. DOE's cleanup actions at the designated inactive sites are conducted under UMTRCA, but not CERCLA, because releases of source, byproduct, and special nuclear material from these sites are excluded from CERCLA's definition of release (see CERCLA §101(22)(C)).

EXHIBIT 5-1

HEALTH AND ENVIRONMENTAL PROTECTION STANDARDS FOR URANIUM AND THORIUM MILL TAILINGS[a]

Type of Site	Requirement	Citation
Inactive uranium processing sites designated for remedial action	Performance standards for long-term effectiveness of remedial actions for controlling radioactive release.	40 CFR section 192.02(a)
	Design requirements for remedial actions for controlling releases of radon-222.	40 CFR section 190.02(b)
	Concentration limits for cleanup of radium-226 contamination in land at a processing site.	40 CFR section 192.12(a)
	Concentration limits for cleanup of radon decay products and gamma radiation in habitable or occupied buildings on a processing site.	40 CFR section 192.12(b)(1) - (b)(2)
Active commercial uranium and thorium processing sites licensed by the NRC or States.	Closure performance standards for controlling radiological hazards at disposal areas.	40 CFR section 192.32 (b)(1)(i)
	Closure design standards to control releases of radon-222 at disposal areas.	40 CFR section 192.32 (b)(1)(ii)
	Concentration limits for radium-226 contamination in land at a licensed and/or disposal site.	40 CFR section 192.32(b)(2)
	Ground-water protection standards for uranium byproduct contamination of ground water during processing operations.	40 CFR section 192.32(a)(2)
Active commercial uranium and thorium processing sites licensed by the NRC or States.	Requirements for closure of uranium and thorium mill tailings sites.	40 CFR section 192.32(b)
	Corrective action requirements for cleanup of contaminated ground water.	40 CFR section 192.33

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[a] Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA)

Standards for Inactive Uranium Processing Sites

The standards for inactive uranium processing sites are organized into control standards, standards for cleanup, and supplemental standards. Each set of standards is summarized below.

Control Standards. The purpose of the control standards set forth in 40 CFR Part 192 Subpart A is to provide for long-term stabilization and isolation in order to inhibit misuse and spreading of residual radioactive materials,[8] control releases of radon to air, and protect ground water and surface water. The standards for stabilization/isolation and radon releases are referenced in Exhibit 5-1; with respect to surface- and ground-water protection, the standards state that existing Federal and State regulations should be used and site-specific measures applied where needed.

Cleanup Standards. The standards set forth in 40 CFR Part 192 Subpart B apply to the cleanup of residual radioactive material from land and buildings.

The purpose of the standards for land cleanup is to limit the risk from inhalation of radon decay products in houses built on land contaminated with tailings, and to limit gamma radiation exposure of people using contaminated land. The specific standards are referenced in Exhibit 5-1. It is important to clarify that the land cleanup standards apply to "dispersed tailings," i.e., windblown or buried tailings on the processing site but separate from the tailings pile itself. When tailings have been transported off the processing site, cleanup of the off-site area to the levels described above also would be required.

The objective of the cleanup standards for buildings is to reduce elevated indoor levels of radon decay products and gamma radiation due to residual radioactive material. Section 192.20(b)(3) states that remedial actions are not required to comply with the cleanup standards when there is reasonable assurance that residual radioactive materials are not the cause of an exceedance of the standards. Section 104(a)(3)(A) and (B) of CERCLA as amended by SARA prohibits response to releases of a naturally occurring substance "in its unaltered form" or "from products which are part of the structure of ... residential buildings or business or community structures." While radon is a naturally occurring substance, the radon cleanup standard in Part 192 is for increased radon levels created by man (i.e., from uranium mill tailings), not natural releases from an unaltered form. Similarly, the radon that is the subject of the standards is not from products that are part of the building's structure. Therefore, the cleanup standards for buildings may be ARARs for CERCLA responses to increased radon levels created by human activity.

Supplemental Standards. As set forth in 40 CFR Part 192 Subpart C, alternative site-specific standards may be established under some special circumstances that allow the selection and performance of remedial actions that come as close as reasonably achievable to meeting the more stringent standards discussed above. In general, these supplemental standards are not expected to be used often; they were provided for situations in which worker safety is an issue (such as remedial actions in the vicinity of steep cliffs or ravines), or for situations in which the materials do not pose a clear present or future hazard and improvements could be achieved only at unreasonably high cost. The supplemental standards should be used only when any of the following circumstances exist (see 40 CFR section 192.21 for more detail):

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[8] In the UMTRCA context, the term "residual radioactive material" means tailings and other waste that result from the processing of ores for the extraction of uranium.

(a) Remedial actions "would pose a clear and present risk of injury to workers or to members of the public notwithstanding reasonable measures to avoid or reduce risk;"

(b) Remedial actions would create environmental harm that is "... long-term, manifest, and grossly disproportionate to health benefits that may reasonably be anticipated;"

(c) The estimated costs of cleaning up land are unreasonably high relative to the long-term benefits, and the residual radioactive materials do not pose a clear present or future hazard;

(d) The cost of cleaning up a building is clearly unreasonably high relative to the benefits;

(e) There is no known remedial action; and

(f) Radionuclides other than radium-226 and its decay products are present in significant quantities and concentrations.

To assure remedies are adequately protective, the lead agency should use caution when considering the supplemental standards and should consult with OERR, ORP, and Regional staff before adopting supplemental standards for a CERCLA site. Although formal guidance on the use of these supplemental standards has not been prepared, there are several ORP memoranda that address this issue.[9]

Standards for Licensed Commercial Sites

As noted previously, the standards for licensed commercial sites are similar to those for inactive sites. However, the standards for licensed commercial sites address ground water and include the general design, construction, operation, closure, and corrective action requirements spelled out under RCRA. For example, these standards require surface impoundments to be designed and constructed in compliance with 40 CFR section 264.221, mill tailings to be managed so as to comply with the ground-water protection standard of 40 CFR section 264.92, and disposal areas at the end of the closure period to comply with the closure performance standard of 40 CFR section 264.111. These standards supplement the ground-water protection standards under RCRA by adding the elements molybdenum and uranium to the list of hazardous constituents referenced in 40 CFR section 264.93 and by specifying concentration limits for radioactivity. For a discussion of the applicability or relevance and appropriateness of RCRA requirements, see Chapter 2 of Part I.

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[9] For example, a memorandum from Allan Richardson (ORP) to William Librizzi (Emergency and Remedial Response Division), dated February 21, 1985, concerning the applicability of secondary standards to the Montclair/West Orange and Glen Ridge Radon sites.

5.1.1.5 40 CFR Part 440: Guidelines and New Source Performance Standards for Ore Mining and Dressing Point Source Category Effluent Limitations

Subpart C of 40 CFR Part 440 establishes radionuclide concentration limits for liquid effluents from facilities that extract and process uranium, radium, and vanadium ores. These standards are applicable to surface-water discharges from certain kinds of mines and mills; they also may be relevant and appropriate to CERCLA actions involving discharges to surface waters of radioactively contaminated waste from other kinds of sites. These standards are more stringent than the NRC's concentration limits for discharges of uranium and radium to unrestricted waters (see 10 CFR Part 20, Appendix B, Table II). Therefore, when both 40 CFR Part 440 and 10 CFR Part 20 may be ARARs for the same site, the lead agency should apply the concentration limits in 40 CFR Part 440.

5.1.2 EPA Advisories and Guidance To Be Considered

EPA has published several advisories and/or pieces of guidance that may be useful for the lead agency to consider when conducting CERCLA responses at radioactively contaminated sites. Some of these are described briefly below:

- "A Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-520/1-75-001 (this document is in a loose-leaf binder form that is periodically updated) provides practical guidance to State, local, and other officials on criteria to use in planning protective actions for radiological emergencies that could present a hazard to the public. Interim agency recommendations are available for evacuation, temporary sheltering, and food replacement; guidance is also being developed for longer-term evacuation and decontamination. For further guidance on the use of this document, the lead agency should contact EPA's ORP.

- A series of publications on techniques for reducing indoor radon levels (for example, "Radon Reduction Techniques for Detached Houses -- Technical Guidance," EPA/625/5-86/019, June 1986) focus on temporary mitigation techniques--not techniques for removing contaminated soil.

- "Technological Approaches to Cleanup of Radiologically Contaminated Superfund Sites," published on May 23, 1988, identifies technologies potentially useful in removing the threat of radioactivity from Superfund sites that contain radionuclides.

- "Guidance on the Definition and Identification of Commercial Mixed Low Level Radioactive and Hazardous Waste" provides guidance on when and how RCRA should apply to the management of low-level radioactive waste. (The document, published jointly in January 1987 by EPA and NRC, appears as an attachment to a March 2, 1987, memorandum from OSW Director Marcia Williams to the Directors of EPA's Regional Hazardous Waste Divisions.)

- "Suggested Guidelines for the Disposal of Naturally Occurring Radionuclides Generated by Drinking Water Treatment Plants," draft report prepared by the Radionuclide Waste Disposal Workgroup for EPA's Office of Drinking Water, January 1988. This document provides guidance to water suppliers and to State and local governments for the proper handling and disposal of waste byproducts from treatment facilities removing naturally occurring radionuclides from drinking water. This guidance may be useful for CERCLA actions involving ground-water extraction and treatment because naturally occurring radionuclides may concentrate in the treatment medium thus requiring special precautions for disposal.[10]

5.2 NRC PROGRAMS

The NRC licenses the possession and use of source, byproduct, and special nuclear material. The approximately 9,000 NRC licensees cover a wide spectrum in terms of the quantity of radioactive material possessed and the complexity of their operations. An extensive regulatory program exists to control the nuclear material operations of these licensees. As discussed in Section 5.2.1 many of the NRC's regulations are potential ARARs and, as discussed in Section 5.2.2, many NRC advisories and guidance materials would be useful to consider during CERCLA actions at radioactively contaminated sites.

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[10] A joint OERR/ORP project is underway to study potential problems created when naturally occurring radionuclides are collected and concentrated in treatment systems used in Superfund remediations.

5.2.1 Potential NRC ARARs

The NRC regulations that likely will have the greatest bearing on CERCLA responses are those contained in 10 CFR Parts 20 and 61. These regulations are discussed in Sections 5.2.1.1 and 5.2.1.2. Several other NRC regulations, however, may also be important, including those found in 10 CFR Parts 30, 40, and 70. These other regulations are discussed in Section 5.2.1.3. Key sections of all of these NRC regulations are summarized in Exhibit 5-2.[11]

5.2.1.1 10 CFR Part 20: Standards for Protection Against Radiation

These standards are designed to limit radiation hazards caused by NRC-licensed activities. They apply to all NRC licensees, regardless of the type or quantity of nuclear material possessed or the type of operations conducted. Part 20 contains many substantive requirements that may have a bearing on CERCLA responses, including permissible dose levels (in terms of the general public's exposure to radiation), radioactivity concentration limits for effluents, precautionary procedures, and waste disposal requirements.

In general, 10 CFR Part 20 may be applicable to CERCLA actions at NRC-licensed facilities. Part 20 also may be relevant and appropriate to CERCLA actions at radioactively contaminated sites not licensed by the NRC. However, although numerous technical and administrative changes have been made to the standards since they were first developed in the late 1950's, Part 20 is now undergoing major revisions that will incorporate current developments in radiation protection principles (a proposed revision to Part 20 was published on January 9, 1986, 51 FR 1092). The proposed revisions to 10 CFR Part 20 should be considered when developing a protective remedy. When promulgated, these revisions would be potential ARARs.

The following sections summarize the provisions in Part 20 that establish permissible levels of radiation in unrestricted areas, concentration limits for discharges to unrestricted areas, and waste disposal requirements; the specific limits set by these provisions are listed in Exhibit 5-2. These provisions probably are the most important to CERCLA actions, but lead agencies should be aware that other provisions in Part 20 are also potential ARARs.

Permissible Levels of Radiation in Unrestricted Areas

Part 20 establishes a general requirement that persons engaged in NRC-licensed activities make every reasonable effort to maintain radiation exposures "as low as is reasonably achievable" (ALARA). In addition, Part 20 establishes several specific radiation dose limits for the protection of workers and members of the public (see Exhibit 5-2). The dose limits that

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[11] Additional NRC regulations in 10 CFR Part 60, which govern the disposal of high-level radioactive wastes in geologic repositories, are not likely to be pertinent to CERCLA actions and thus are not discussed in this chapter.

EXHIBIT 5-2

SELECTED NUCLEAR REGULATORY COMMISSION REQUIREMENTS FOR RADIOACTIVE WASTE MANAGEMENT[a]

Action	Requirement	Citation
Protection of workers in restricted areas	Variety of radiation exposure limits including dose limit of 1.25 rem/quarter to whole body.	10 CFR section 20.101-20.104
Protection of the public	Radiation exposure limited to: • Whole body dose of 0.5 rem/year; • 0.002 rem/hour; • 0.1 rem in any 7 consecutive days; and • The dose limits in 40 CFR Part 190 for uranium fuel cycle operations.	10 CFR section 20.105
Discharge to air and water	Discharges must meet radionuclide-specific concentrations limits in 10 CFR Part 20, Appendix B	10 CFR section 20.106
Waste treatment and disposal	Various waste disposal requirements are set that include concentration limits for disposal into sewers and for incineration.	10 CFR section 20.301 and 20.302(a)

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[a] These standards are applicable to all categories of NRC licensees and to Agreement State licensees. Thus, they are potentially applicable only for CERCLA actions at sites licensed by the NRC, but may be relevant and appropriate to other radioactivity contaminated sites.

apply to members of the public are considered high relative to recent EPA standards (e.g., 40 CFR Parts 61 and 190) and may, depending on the circumstances at the site, be superceded by more stringent ARARs. The levels are based on the "Radiation Protection Guidance to Federal Agencies for the General Population," published by the Federal Radiation Council in 1960 (25 FR 4402), which is currently being reviewed by EPA in concert with other Federal agencies.

Lower dose limits currently apply to most radionuclide releases from NRC licensees. For example, 10 CFR section 20.106(g) incorporates the provisions of 40 CFR Part 190, which establish significantly lower dose limits for all releases from NRC-licensed operations within the uranium fuel cycle (see Section 5.1.1.3 of this chapter). Also, airborne releases from NRC licensees must not result in doses that exceed the limits set forth in the NESHAPs for radionuclides (see Section 5.1.1.1 of this chapter).

Radioactivity in Effluents to Unrestricted Areas

Section 20.106 establishes concentration limits for numerous radionuclides in airborne and liquid effluents to unrestricted areas. These limits are for annual average concentrations and do not apply to disposal of radioactive material into sanitary sewerage systems. The NRC may in some cases approve discharges of higher concentrations of radionuclides based on analysis of the discharge rate, properties of the effluents, anticipated human occupancy of the receiving area, background concentration of radionuclides, and other site-specific features.

Several EPA standards, which establish more protective levels, should be used instead of the concentration limits in Part 20--if the EPA standards are ARARs. Specifically, the effluent limitations in 40 CFR Part 440 for radium-226 and uranium are more protective than the liquid effluent concentration limits in 10 CFR Part 20. The radiation dose limits in 40 CFR Parts 61 and 190 are also lower than the doses on which the Part 20 concentration limits are based, such that the annual average concentrations in airborne and liquid discharges may have to be lower than those specified in section 20.106 in order to comply with 40 CFR Parts 61 and 190.

Waste Disposal Requirements

Part 20 allows NRC licensees to dispose of radioactive wastes in several different ways, including by:

- transfer to another NRC licensee that is specifically authorized to receive it;
- discharge to the sanitary sewer, subject to certain limits spelled out in 10 CFR section 20.303 and EPA's radiation standards in 40 CFR Part 190;
- discharge into the ambient air or water, subject to the concentration limits set forth in 10 CFR section 20.106

and EPA's radiation standards in 40 CFR Parts 61 and 190; or

- any other method specifically authorized by NRC under section 20.302. Site-specific factors that NRC considers when authorizing alternate waste disposal methods include the kinds and quantities of radioactive materials involved, geological and hydrological characteristics, local surface- and ground-water uses, and the nature and location of other potentially affected facilities.

5.2.1.2 10 CFR Part 61: Licensing Requirements for Land Disposal of Radioactive Waste

NRC regulations in 10 CFR Part 61 establish the procedures, criteria, and terms and conditions that apply to the issuing of licenses for the land disposal of radioactive waste received from other persons. The regulations are applicable to any new land disposal facility licensed by the NRC (where a new facility is defined as a facility for which a license application is submitted after December 27, 1982). Part 61 is applicable to existing licensed low-level waste disposal sites at license renewal, but it is not applicable to previously closed sites, including existing CERCLA sites containing low-level radioactive waste. The performance objectives and technical requirements may be relevant and appropriate to existing CERCLA sites containing low-level radioactive waste if the waste will be permanently left on site.[12] However, radioactive wastes at CERCLA sites often fall outside the definition of wastes covered by Part 61, particularly when naturally occurring and accelerator-produced radioactive material (NARM) is involved.

5.2.1.3 10 CFR Parts 30, 40, and 70: Domestic Licensing of Byproduct, Source, and Special Nuclear Material

Parts 30, 40, and 70 contain licensing requirements for the possession and use of byproduct, source, and special nuclear material, respectively. Activities associated with the generation, treatment, and storage of wastes containing these materials are licensed under each of these Parts, subject to the radiation protection standards in 10 CFR Part 20. Disposal of these wastes is regulated under 10 CFR Parts 20 and 61, discussed above.

One section of these regulations that is particularly noteworthy is 10 CFR Part 40, Appendix A. Appendix A incorporates the basic provisions of Subparts D and E of 40 CFR Part 192, and its health-based limits are entirely consistent with those in that and other EPA regulations. Appendix A, however, contains many provisions that are not in 40 CFR Part 192, such as detailed siting, design, and monitoring requirements. The latest revision to 10 CFR Part 40, Appendix A, was promulgated on November 13, 1987 (52 FR 43553); this revision addresses, at least in part, EPA's ground-water protection requirements found in 40 CFR Part 192.

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[12] EPA will soon propose new environmental standards for the management, storage, and disposal of low-level radioactive waste and certain NARM wastes (40 CFR Part 193). As of the writing of this guidance manual, these proposed standards were undergoing EPA's internal (Red Border) review process. Once the EPA standards are promulgated, the NRC will make necessary conforming amendments to Part 61. Also, lead agencies should consider the proposed EPA standards in developing protective remedies once the standards are published.

Parts 30, 40, and 70 may be applicable to CERCLA actions at sites licensed under the respective parts. In addition, Parts 30, 40, and 70 may be relevant and appropriate to other, non-licensed sites that contain radioactive contamination.

5.2.2 NRC Advisories and Guidance To Be Considered

The NRC has published numerous advisories and guidance materials (e.g., Regulatory Guides, Technical Position Papers, and NUREG documents) that are not ARARs but may be useful to consider when conducting CERCLA responses at radioactively contaminated sites. Example advisories and guidance that may be most useful are discussed below.

"Disposal or On-site Storage of Residual Thorium or Uranium (Either as Natural Ores or Without Daughters Present) from Past Operations," is a technical position paper published by the NRC's Uranium Fuel Licensing Branch on October 23, 1981 (46 FR 52061). This technical position paper provides guidance on five on-site disposal and storage options. For the different options, there are progressively higher concentration limits for residual radioactivity, with progressively more restrictive controls placed on sites with higher concentrations. Option 1 establishes concentrations of natural thorium, depleted or enriched uranium, and uranium ores that the NRC staff believes are low enough to be buried without restrictions on the burial methods. The concentration limits for this option were developed to be consistent with EPA's cleanup standards in 40 CFR Part 192 (see Section 5.1.1.5 of this chapter). EPA cautions, however, that this technical position paper is only guidance and, in places where the guidance may be less protective or in conflict with 40 CFR Part 192, Part 192 should take precedence.

NUREG-1101, "On-site Disposal of Radioactive Waste," provides guidance to licensees seeking authorization (under 10 CFR section 20.302) to dispose of small quantities of radioactive material by on-site subsurface disposal. In particular, this guidance identifies application information to be submitted to the NRC, disposal methods and techniques acceptable to NRC staff, limiting conditions for disposal of different categories of radionuclides, and the technical methodology NRC staff will use to evaluate requests for approval of on-site burial. At present, three volumes of this guidance have been published and a fourth is in preparation. Agencies that may use this guidance are cautioned, however, that EPA's low-level waste disposal standards once proposed will be more restrictive (see footnote 12 for more detail on these forthcoming EPA standards).

Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors," provides surface radioactivity and dose rate criteria for determining when facilities and equipment can be released for unrestricted use. The criteria in this guide are the same as those published separately by the NRC's Division of Fuel Cycle and Material Safety in July 1982 ("Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material"). This guidance would be useful in assessing the hazards of residual radioactivity concentrations in equipment or in buildings; it should not be used to evaluate the concentrations in contaminated land or buried waste. Also, lead agencies are cautioned that the concentration limits in this guidance are quite old; however, no other guidance in this area currently exists. New residual radioactivity criteria are currently being developed by EPA's ORP, but these criteria are not expected to be promulgated until 1991.

The NRC has published several reports that discuss regulatory controls for NARM. Because existing controls for NARM are fragmentary and non-uniform on both the Federal and State level, these reports may be useful in identifying ARARs for NARM waste at CERCLA sites. Two relatively recent reports that may be most useful in this regard are: (1) "Naturally Occurring and Accelerator-Produced Radioactive Materials--The 1987 Review," by the NRC's Office of Nuclear Material Safety and Safeguards; and (2) "Regulation of Naturally Occurring and Accelerator-Produced Radioactive Materials: An Update," NUREG-0976, October 1984.

The NRC's Division of Low-Level Waste Management and Decommissioning has published a draft Technical Position Paper entitled "Environmental Monitoring of Low-Level Radioactive Waste Disposal Facilities" (September 1987). The purpose of this paper is to provide guidance, developed in accordance with 10 CFR Part 61, to license applicants, licensees, and regulatory authorities with respect to the monitoring of low-level waste facilities. This document presents the NRC staff's opinion on technical requirements for site environmental monitoring, as well as a rationale for the need and use of the types of monitoring suggested.

Finally, Appendix E of Revision 1 to NUREG-1213, "Plans and Schedules for Implementation of U.S. Nuclear Regulatory Commission Responsibilities Under the Low-Level Radioactive Waste Policy Amendments Act of 1985," lists numerous NRC publications on low-level waste disposal. The documents listed might be of interest to technical staff developing remedial action alternatives and designs.

5.3 DOE PROGRAMS

As noted in the introduction of this chapter, most of DOE's operations are exempt from NRC's licensing and regulatory requirements. DOE's requirements for radiation protection and radioactive waste management are spelled out in a series of internal DOE orders. These orders, which are issued under the authority of the Atomic Energy Act and other statutes, have the same force for DOE facilities or "within DOE" as does a regulation. The requirements in the orders are legally enforceable by DOE against contractors that operate DOE installations; the orders do not apply to sites outside of DOE's jurisdiction.

The DOE orders are not promulgated requirements and are not potential ARARs. The orders have been developed for internal DOE use and are applicable only to DOE facilities. DOE orders are not subjected to public review and comment before issuance, and they are legally binding only because of contractual arrangements between DOE and its contractors (i.e., they are not a matter of public law).

Because DOE's orders typically incorporate requirements promulgated by other Federal agencies, the orders should be consistent with existing regulations. To the extent that DOE orders are more stringent or cover areas not addressed by existing ARARs, they should be considered when necessary to develop a protective remedy.

The most important DOE order concerning radiation protection and radioactive waste management is DOE 5400.3, "Radiation Protection of the Public and the Environment." DOE 5400.3 will integrate, consolidate, and update existing DOE requirements.[13] As of early 1989, DOE 5400.3 was undergoing final internal review.

DOE 5400.3 will establish broad standards and requirements designed to protect the public and environment against undue risk from radiation released from routine DOE activities and remedial actions. For example, it will establish the following radiation exposure limits for members of the public:

- an effective dose equivalent of less than 100 millirem/year (all exposure pathways considered);[14]
- a dose of less than 5 rem/year to any organ (all exposure pathways considered);
- doses of less than 25 millirem/year to the whole body and 75 millirem/year to any organ (only airborne emissions and exposure pathways considered);[15]
- doses of less than 25 millirem/year to the whole body and 75 millirem/year to any organ (all exposure pathways

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[13] Existing DOE requirements for radiation protection are found in, among other places, Chapter 11 of DOE Order 5480.1B, as amended by a memorandum from William A. Vaughan, Assistant Secretary of the Office of Environment, Safety, and Health, to the DOE Program Offices (August 5, 1985). This memorandum incorporated new radiation standards for protection of the public in the vicinity of DOE facilities.

[14] The effective dose equivalent is a weighted average of committed dose equivalents for specific organs. It provides a measure of the overall (i.e., whole body) carcinogenic and genetic effects resulting from a radionuclide exposure.

[15] Consistent with limits established by EPA into CFR Part 61.

considered, but only for releases from facilities that manage and store spent nuclear fuel, high-level, and transuranic wastes);[16]

- an effective dose of less than 4 millirem/year (only the drinking water pathway considered);[17] and
- DOE personnel and contractors shall strive to ensure that radiation doses to members of the public are as low as reasonably achievable below the appropriate limits.

In addition to establishing radiation exposure limits for individual members of the public, DOE 5400.3 is expected to include derived concentration guides (DCGs) for discharges of radioactively contaminated liquids to surface waters, aquifers, soil, and sanitary sewerage systems. Furthermore, the order may establish criteria for limiting radiation doses to aquatic organisms, as well as radiological monitoring requirements and requirements for detecting and assessing unplanned releases of radioactive material and the consequences of such releases. Also, one chapter of DOE 5400.3 may include detailed guidelines for residual radioactive material at DOE sites within the Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program. These guidelines may incorporate most of the same control and cleanup provisions of 40 CFR Part 192, as discussed in Section 5.1.1.4. The order will be supported by technical documents providing factors used to estimate external and internal doses received from exposure to radiation or radioactive materials,[18] as well as expanded requirements and guidance on effluent and environmental monitoring.

DOE has also published an interpretive rule in 10 CFR Part 962 that clarifies DOE's obligations under RCRA with regard to radioactive waste containing byproduct material owned or produced by DOE (52 FR 15937, May 1, 1987). The rule states that all DOE radioactive waste defined as hazardous under RCRA is subject to regulation under both RCRA and the Atomic Energy Act; the nonradioactive hazardous component of the waste substance is subject to regulation under RCRA, and the actual radionuclides dispersed in the waste substance are subject to regulation under the Atomic Energy Act. When the application of both regulatory regimes proves conflicting or inconsistent in specific instances, RCRA yields to the Atomic Energy Act (i.e., the Atomic Energy Act requirements should take precedence).

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[16] Consistent with limits established by EPA in 40 CFR Part 191.

[17] Consistent with limits established by EPA in 40 CFR Part 141.

[18] DOE draft reports: "Internal Dose Conversion Factors for Calculation of Dose to the Public" and "External Dose-Rate Conversion Factors for Calculation of Dose to the Public." EPA's ORP is preparing analogous dose conversion factors to be published in Federal Guidance Report No. 11.

CHAPTER 6

POTENTIAL ARARs FOR CERCLA ACTIONS AT MINING, MILLING, OR SMELTING SITES

6.0 INTRODUCTION

In some ways, mining sites are unique with respect to other CERCLA sites because of the nature and volume of the wastes and the surface area of the sites. Several laws and statutes, described below, apply specifically to mining sites, namely the Uranium Mill Tailings Radiation Control Act (UMTRCA)[1] and the Surface Mining Control and Reclamation Act (SMCRA). Legislation described in other chapters may also contain potential ARARs. For example, Maximum Contaminant Levels promulgated under the Safe Drinking Water Act (SDWA) will generally be relevant and appropriate when mining wastes have contaminated ground water that is a current or potential drinking water supply. Federal Water Quality Criteria developed under the Clean Water Act (CWA) may be ARARs if mining waste has contaminated a stream, depending on the designated use of the stream. The policies and considerations used to determine whether a requirement is applicable to or relevant and appropriate for a mining site are essentially the same as those used to make that determination for any CERCLA site. State standards for cleanup of abandoned coal mines may also be ARARs depending upon the circumstances at a particular site.

This chapter is organized into two major sections. Section 6.1 discusses potential ARARs under SMCRA, and because RCRA is an important source of potential ARARs for CERCLA actions at mining sites, Section 6.2 addresses the requirements under Subtitles C and D of RCRA as potential ARARs for the cleanup of mining sites under CERCLA. The process for determining ARARs under RCRA, however, is somewhat complicated by the fact that certain mining wastes are excluded from the RCRA definition of hazardous waste.

6.1 SURFACE MINING CONTROL AND RECLAMATION ACT

SMCRA, 30 USC §§1201 *et seq*., establishes a nationwide program for the protection of human health and the environment from the adverse effects of surface coal mining operations, current and past.[2] Pursuant to SMCRA, the Department of the Interior, Office of Surface Mining, has promulgated standards for surface mining activities (30 CFR Part 816) that may be relevant and appropriate to mining sites on the NPL.

Requirements under SMCRA may be applicable to CERCLA cleanup of sites associated with abandoned coal mines and may be relevant and appropriate to cleanup of other types of mining sites under CERCLA. (See Section 1.2.4.3 of Chapter 1 of Part I for further guidance on how to determine whether a requirement is relevant and appropriate). The requirements found in 30 CFR Part 816 may be relevant and appropriate for CERCLA actions at mining sites when, for example:

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[1] Standards developed under UMTRCA for stabilization, disposal, and control of uranium and thorium mill tailings are discussed in Chapter 5 of Part II of this guidance manual.

[2] Surface effects of underground coal mining are also covered.

- The site contains geologic materials containing sulfides,[3] and there is a release or threat of a release of acid. Such a release could mobilize a related release of acid-soluble metals that are hazardous substances, thus disrupting the hydrologic balance and adversely affecting aquatic and other resources. In such situations, 30 CFR Part 816 requirements that boreholes and shafts be sealed to prevent drainage from entering ground water, and that the drainage be treated to reduce toxic content, may be relevant and appropriate. (See 30 CFR sections 816.4(b), (d), and (f)).

- The site is subject to erosion (due to steep slopes and often arid conditions in mining areas) and thus releases from soils or wastes are contaminated by heavy metals. In such cases, revegetation requirements (30 CFR section 816.111) may be relevant and appropriate, for example, to protect a cap at a CERCLA mining site from erosion and to prevent further releases of arsenic or heavy metals. Also, see 30 CFR section 816.41(f)(1)(i) for requirements regarding burying materials that may be detrimental to vegetation.

6.2 RESOURCE CONSERVATION AND RECOVERY ACT

Under RCRA §3001(b), EPA is temporarily prohibited from regulating "solid waste from the extraction, beneficiation, and processing of ores and minerals" as hazardous waste, pending study and further regulation by EPA (this exclusion of wastes is known as the Bevill Amendment). Therefore, unless EPA has specifically listed a certain mining waste or waste stream in a formal rulemaking, Subtitle C requirements are not applicable to mining wastes nor to soil and debris wastes contaminated with mining wastes, since the contamination does not derive from a RCRA hazardous waste. This is true even if a waste would otherwise be considered a characteristic hazardous waste.

For many of the wastes that result from the extraction and beneficiation of ores and minerals, EPA has determined that regulation of these wastes under

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[3] Sulfide-containing materials are found at coal sites, as well as at many "hard rock" mining, milling, and smelting sites that are being addressed pursuant to CERCLA.

Subtitle C is not warranted at this time.[4] Therefore, Subtitle C requirements are not applicable to these wastes. In addition, since EPA has made a formal decision that regulation of these wastes under Subtitle C is not warranted, Subtitle C requirements for hazardous waste will generally not be relevant and appropriate to these wastes. To the extent that the circumstances at the site differ from general site characteristics that formed the basis of the decision (see 51 FR 24496), a different approach may be taken, and certain Subtitle C requirements may be relevant and appropriate.

For wastes that result from the processing of ores and minerals, EPA has started to relist as hazardous certain processing wastes that were initially suspended under the Bevill Amendment. On September 13, 1988 (see 53 FR 35412), the Agency promulgated a final rule to remove the suspensions for the following six smelting wastes:

- K064 -- Acid Plant Blowdown Slurry/Sludge Resulting from the Thickening of Blowdown Slurry at Primary Copper Smelting and Refining Facilities;
- K065 -- Surface Impoundment Solids Contained in and Dredged from Surface Impoundments at Primary Lead Smelting Facilities;
- K066 -- Sludge from Treatment of Process Wastewater and/or Acid Plant Blowdown at Primary Zinc Smelting and Refining Facilities;
- K088 -- Spent Potliners from Primary Aluminum Reduction Facilities;
- K090 -- Emission Control Dust or Sludge from Ferrochromiumsilicon Production Facilities; and
- K091 -- Emission Control Dust or Sludge from Ferrochromium Production Facilities.

As a result of this rulemaking, these six wastes are now listed as RCRA hazardous wastes. Therefore, requirements pertaining to these hazardous wastes are potential ARARs.

On October 20, 1988, EPA proposed to revise the list of processing wastes excluded under the Bevill Amendment. The proposed rulemaking would have eliminated from the mining waste exclusion all but 15 specific high-volume processing wastes, which the Agency would define as "special wastes" (53 FR 41288). Based on public comments received on this rulemaking, EPA reproposed this rulemaking on April 17, 1989 (54 FR 15316) containing revised criteria by which wastes will be excluded under the Bevill Amendment. The proposal (which will be finalized in August, 1989) would designate 6 high-processing wastes as special wastes. Thirty-three other high-volume processing wastes would remain conditionally exempt from Subtitle C pending further rulemaking to determine their "special waste" status. That rulemaking will be completed by January, 1990.

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[4] "Regulatory Determination for Wastes from the Extraction and Beneficiation of Ores and Minerals," 51 FR 24496 (July 3, 1986).

Special wastes will be studied and presented in a report to Congress, and be subject to future regulation pursuant to RCRA §3001. All other mineral processing wastes will be regulated as hazardous wastes if the wastes exhibit one or more of the hazardous characteristics; Subtitle C requirements will be potential ARARs for these wastes. Decisions about whether a Subtitle C requirement is relevant and appropriate to wastes covered under this rulemaking, given the site circumstances, must be made on a case-by-case basis until a formal decision on whether to apply Subtitle C to these wastes is made (before January 1991).

Mining wastes that are not currently regulated under Subtitle C are subject to Subtitle D requirements, which primarily provide performance standards that States use to identify unacceptable solid waste facilities or management practices. The Agency is developing regulations under Subtitle D designed specifically for mining wastes that will not be regulated as hazardous waste, since current Subtitle D regulations may not adequately address the risks from these wastes. It is anticipated that these Subtitle D regulations will address facility development, operation, closure, and post-closure maintenance. When promulgated, the revised Subtitle D regulations may be ARARs for Superfund actions.

CHAPTER 7

CERCLA COMPLIANCE WITH STATE REQUIREMENTS

7.0 INTRODUCTION

CERCLA §121 provides that for any hazardous substance, pollutant, or contaminant that will remain on site, remedial actions undertaken pursuant to §§104, 106, 120, or 122 must satisfy any applicable or relevant and appropriate Federal requirement and any applicable or relevant and appropriate promulgated State standard, requirement, criterion, or limitation under State environmental or facility siting law that is more stringent than any Federal requirement if the State requirement is identified in a "timely" manner.[1] This chapter presents guidance on how to address policy and procedural issues in identifying and complying with State ARARs.

Indian Tribal Governments may adopt requirements and standards into Tribal law for control of the environmental quality of Tribal lands. The proposed revisions to the NCP treat Tribal requirements that meet the eligibility criteria for State ARARs, i.e., they are promulgated (legally enforceable and of general applicability) and more stringent than Federal requirements as potential ARARs for on-site remedial actions on Indian lands. Informal or unofficial standards or requirements that have not been adopted by resolution, ordinance, or other Tribal administrative procedures are unlikely to meet the eligibility criteria. Pending final action on the proposed revisions to the NCP, EPA is following this approach as a matter of policy.[2]

This chapter first contains a description of the statutory criteria for determining whether a State requirement will be a potential ARAR. These criteria, which are analyzed in Section 7.1, include requirements that the State standard be "promulgated" and "more stringent." Sections 7.1.1 and 7.1.2 provide a conceptual framework for analyzing whether a particular State standard satisfies these criteria.

This chapter also outlines several common examples of State statutes that may be considered as potential ARARs, describes their basic characteristics, and provides policy guidance on situations in which they are likely to be potential ARARs. These State statutes include location standards and other siting requirements, State limitations on discharges of toxic pollutants to surface water, and antidegradation requirements for surface water, which are described in Section 7.2. Policy guidance is provided on particular features of State location and siting standards, including waivers and override provisions and bans on facilities in particular locations.

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[1] The proposed NCP states that the definition of "State" shall include "Indian Tribes," 53 FR 51479, 51477 (December 21, 1988).

[2] This policy is in accordance with the objective of EPA's Indian Policy (November 8, 1984), which is "to give special consideration to Tribal interests in making Agency policy, and to insure the close involvement of Tribal Governments in making decisions and managing environmental programs affecting reservation lands....The Agency will recognize Tribal Governments as the primary parties for setting standards, making environmental policy decisions and managing programs for reservations, consistent with Agency standards and regulations."

In addition to providing policy guidance on how the criteria for State ARARs should be analyzed, this chapter also describes the procedures for States to identify State ARARs. It sets forth the roles of the lead and support agencies in the process of communicating State ARARs and specifies points in the remedial process when State ARARs must be identified. The most important procedural requirements are specified in the Superfund Memorandum of Agreement (SMOA), and Section 7.3 describes how the SMOA is developed to enhance the process of identifying and communicating ARARs. Finally, this chapter contains a description of the basic requirements for timely, specific, accurate, and comprehensive identification and description of State ARARs.

7.1 CRITERIA FOR DETERMINING IF A REQUIREMENT IS ELIGIBLE TO BE A STATE ARAR

A State is responsible for the identification of potential State ARARs whether acting in the role of the lead or support agency during the remedial process.[3]

The first step that is taken by a State in the process of determining whether requirements are eligible to be State ARARs is to compile the universe of State environmental or facility siting laws from which potential ARARs can be identified. Potential ARARs are identified on a site-specific basis during the critical points in the remedy selection process. CERCLA §121(d)(2)(A) specifically limits the scope of State ARARs to standards, requirements, criteria, or limitations under environmental or facility siting laws that are promulgated and more stringent than Federal requirements. Using the procedures described in Exhibit 7-1 and the accompanying text, a State must analyze potential ARARs to determine whether they meet these two criteria.

7.1.1 Identification and Determination of "Promulgated" State Requirements

The eligibility of State requirements as ARARs is consistent with that of Federal requirements in that they both must be "promulgated," as opposed to non-promulgated guidance or advisories. "Promulgated" requirements are laws imposed by State legislative bodies and regulations developed by State agencies. The proposed NCP defines "promulgated" State requirements as State standards that are of general applicability and are legally enforceable.

- Legally Enforceable

  Legally enforceable requirements are State regulations or statutes that:

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[3] In both cases, the identification process includes a Federal review of and concurrence with the State finding in order for a remedial action to proceed.

- Contain specific enforcement provisions; or

- Are enforceable by means of the general authority in other laws or in the State constitution.

- General Applicability

  For a State requirement to be a potential ARAR, it must be of general applicability. The phrase "of general applicability" means that the requirement must be applicable to all circumstances covered by the requirement, not just Superfund sites (e.g., the provisions of this chapter apply to any person storing, collecting, transporting, processing, or disposing of solid waste). An example of a requirement that is not of general applicability is one that was promulgated for a particular CERCLA site or for CERCLA sites exclusively, and not for other hazardous wastes sites (e.g., promulgation of cleanup standards specific to one or more NPL sites but not other sites with releases of hazardous substances elsewhere in the State).

In most cases, promulgated requirements will have clear indications of promulgation. Documentation of promulgation, such as the statute number, date of enactment, and the effective date of the requirements, is provided when a State law is adopted and can be obtained readily from the statute itself or its source, i.e., the enacting legislative body or agency.

Promulgated State laws and regulations can contain provisions that range from chemical-specific numerical standards, the application of which can be clearly identified and considered, to narrative criteria, which do not contain specific requirements. The identification of the requirements through which narrative criteria are implemented on a site-specific basis may call for a review of other environmental statutes.

State environmental laws that are typically written with narrative criteria are statutes that prohibit degradation or limit the discharge of toxic pollutants.[4] The requirements that implement these laws are not necessarily formulated through promulgation of additional State regulations specific to the law; rather, they can be provisions contained within the State water quality standards statute, for example, or in other State statutes relating to the protection of natural resources. The promulgated requirements that implement State environmental laws can also range from numerical standards to non-quantitative narrative criteria, such as toxicity testing procedures. Following the identification of specific promulgated requirements, the application of the requirements must be interpreted on a site-specific basis. State policies or guidance used in implementing or interpreting narrative criteria or standards, although not ARARs, should be considered in determining the remedy. For example, if a State Water Quality Standard prohibits the discharge of "toxic pollutants in toxic amounts," the remedial decision maker would need to decide what that means in the context of the site at issue, considering any pertinent State policies or guidance.[5]

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[4] General State environmental laws for consideration as potential ARARs are discussed further in Section 7.2.

7.1.1.1 Criteria That Are To Be Considered (TBCs)

Promulgated statutes may contain legally enforceable standards that are applied by State agencies through the issuance of limit-containing permits. Standards or limits that are not promulgated but are generally included in permits are not potential ARARs. Although these promulgated statutes are potential ARARs, any specific standards or limits that are derived from State regulations are not in themselves considered ARARs. This is true even if repeated application of the regulation results in the same numerical standard or limit being applied. However, these standards, as well as State advisories, guidance, non-binding guidelines, or other standards that are not legally binding or of general applicability may nevertheless be considered in fashioning a protective remedy for a site. Consistent with the treatment of Federal criteria that are to be considered, the scientific basis for State TBCs should be evaluated.[6]

7.1.1.2 State Policies

Non-promulgated State policies are not requirements, but are often developed and documented when State statutes or regulations are interpreted and implemented by State agencies (e.g., guidance memoranda or documents). These State policies are to be distinguished from promulgated "criteria" that are contained in a State statute and implemented via specific requirements found in the statute or in other promulgated State regulations. Non-promulgated State policies help to shape the consistent application and enforcement of requirements and, as such, are classified as TBCs. Also, State policies may be needed to assist in the clarification of a requirement and may be used in determining how an ARAR should be applied.

7.1.1.3 Relationship Between Local Requirements and State ARARs

CERCLA §121(d) does not require CERCLA actions to comply with local laws, i.e., local laws in themselves are not ARARs. However, in some cases, requirements that are developed by a local or regional body and are adopted and legally enforceable by the State may be potential State ARARs. These requirements may include State standards that are set by regional boards as

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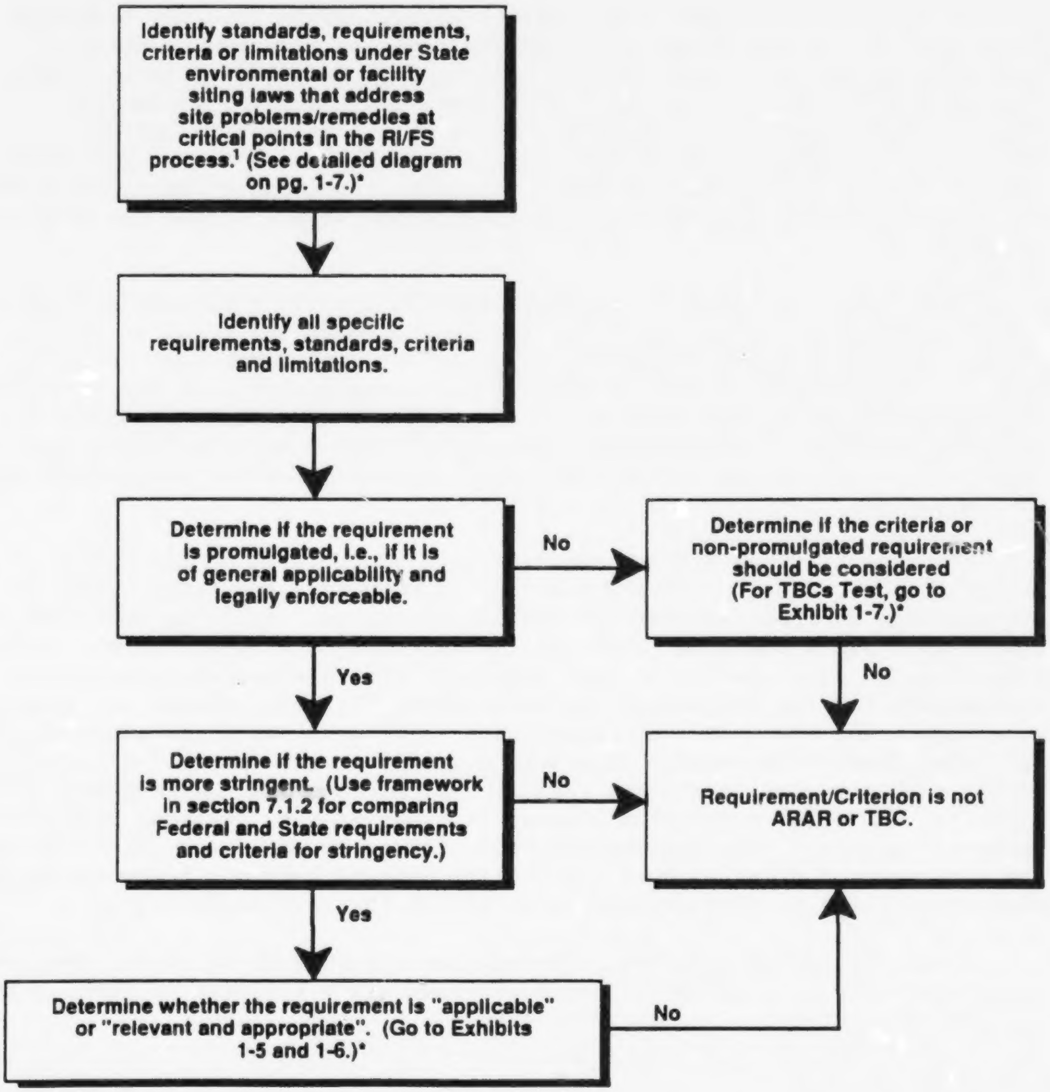
[5] See Section 7.2.2 of this guidance manual for further discussion of narrative criteria for the control of discharges of toxic pollutants.

[6] More information on TBCs is provided in Part I of this guidance manual.

Exhibit 7-1

Procedures for Determining Eligibility of State ARARs



Identify standards, requirements, criteria or limitations under State environmental or facility siting laws that address site problems/remedies at critical points in the RI/FS process.[1] (See detailed diagram on pg. 1-7.)*

Identify all specific requirements, standards, criteria and limitations.

Determine if the requirement is promulgated, i.e., if it is of general applicability and legally enforceable.

Determine if the criteria or non-promulgated requirement should be considered (For TBCs Test, go to Exhibit 1-7.)*

Determine if the requirement is more stringent. (Use framework in section 7.1.2 for comparing Federal and State requirements and criteria for stringency.)

Requirement/Criterion is not ARAR or TBC.

Determine whether the requirement is "applicable" or "relevant and appropriate". (Go to Exhibits 1-5 and 1-6.)*

[1] The universe of potential State ARARs will vary considerably in each state. A list from which site-specific ARARs can be identified should be developed by each State through cooperation and coordination of various State agencies.

* References are to Part I of the "CERCLA Compliance With Other Laws Manual."

well as local requirements that are part of a legally enforceable State "plan."[7]

For example, the California Porter-Cologne Water Quality Act (California Water Code Sections 13300-13999.16 and Title 23 of the California Administrative Code) directs nine regional boards to formulate regional water quality control plans that are designed to ensure protection of beneficial uses of the State's waters. The State's waters may be used for discharge of waste only if the discharge meets the regional board's requirements. According to the Act, which ensures California's eligibility to implement the Federal NPDES requirements, regional boards must issue the discharge requirements necessary to implement the water quality control plans. Substantive discharge requirements of each of California's regional water quality control plans, as with NPDES discharge requirements in other States, are potential ARARs for CERCLA discharges to the waters within the respective region.

Some State laws require the adoption of a legally enforceable State "plan" containing requirements that are generated at the local or regional level. Hazardous waste management planning is often undertaken in this manner. For example, a State hazardous waste management plan may be prepared in conjunction with, and take into account, plans adopted by counties and regional councils of governments. The comprehensive plan, which is then adopted and implemented by the State, may contain potential State ARARs for CERCLA actions.

The Federal Clean Air Act requires each State to adopt and submit to EPA a plan that provides for implementation, maintenance, and enforcement of primary and secondary ambient air quality standards. After consultation with appropriate State and local authorities, EPA designates areas within each State (called "air quality control regions") that are deemed necessary or appropriate for the attainment and maintenance of these ambient air quality standards. The State Implementation Plan (SIP) must establish emission limits and other measures necessary to assure compliance with the ambient standards within each air quality control region.[8] In some States, the regional bodies establish and enforce emission limits; in other States, regional bodies submit standards that are then implemented and enforced by the State. In both cases, the requirements of a regional air quality control body may be potential State ARARs for CERCLA on-site actions taken within the respective region.

Local air toxics programs, although not eligible to be ARARs, deserve particular attention as TBCs. These programs are a key part of EPA's national air toxics strategy.

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[7] Local zoning requirements may be TBCs, and should be complied with when necessary to protect human health and the environment.

[8] Standards which are incorporated into a Federally-approved SIP are also Federally enforceable.

7.1.2 General Procedures for Determining if a Requirement is "More Stringent"

This section covers how to determine when a State standard is more stringent than a Federal requirement. It presents a conceptual framework for comparing State and Federal requirements and criteria for determining whether a proposed State ARAR is more stringent, should this comparison become necessary.

The comparison of State and Federal requirements on the basis of stringency can be facilitated by first determining the authority under which the environmental program and its requirements were promulgated. In the case of State environmental programs that have been authorized by EPA to be fully administered and enforced in lieu of a Federal program, the stringency of the State requirements has already been established, i.e., the State program must be at least as stringent such that it provides for compliance with the requirements of the Federal Act. Establishing stringency can require more attention, however, when the State program has not been Federally authorized. In such cases, a comparison of requirements may call for an evaluation of the more stringent of two requirements. Guidelines for making this determination are presented in this section.

7.1.2.1 State Programs That Have Been Federally Authorized

Appendix B shows the relationship between Federal and State programs, in terms of authorization, under the major environmental statutes that are contained in the universe of potential ARARs (i.e., Part I and Part II of this guidance manual). If authorization for operating a Federal program has been acquired by a State, it can be seen that the requirements of the State program are at least as stringent as or more stringent than those requirements of the parallel Federal law or regulation. Therefore, a side-by-side comparison of Federal and State provisions is not necessary. When identifying potential ARARs under a State program which has gained Federal authorization, a State should select the authorized provisions of the State statute or regulation that address the site problems and remedies. For the purposes of identification and communication of State ARARs, the authorized State requirement is to be documented as the potential ARAR (as it is regarded as the requirement that is in effect).

Federal environmental statutes may either contain the requirement or allow for the authorization of State programs to be carried out in lieu of direct administration in the State by EPA. The statute may allow all regulations to be formulated and adopted by the State, such as in RCRA requirements, or it may retain several rulemaking provisions under Federal jurisdiction, such as in the Clean Water Act. In either case, a State requirement that is Federally authorized must generally be "equivalent" to its Federal counterpart, equivalent meaning that the requirement is identical (enacted verbatim) or achieves the same result. In some instances, an identical State requirement is mandated for authorization to be gained. In addition, Federal statutes may allow States to promulgate "more stringent" requirements than those requirements provided by Federal law. These "more stringent" requirements may be in the form of effluent standards that lower a concentration or volume of a pollutant discharge, for example, or they may be in the form of an additional or exclusive State requirement for which no comparable Federal requirement exists.

7.1.2.2 State Programs That Have Not Been Federally Authorized

- State Programs With No Federal Counterpart: A State may find that it needs to promulgate environmental regulations that involve aspects of pollution control addressing specific conditions within that State. Pennsylvania, for example, has promulgated strict wasteload management regulations that control the loading on public sewerage systems because of the deteriorated conditions of the aged conveyance and treatment systems in the State. A Federal counterpart to a State regulation such as this one may not exist, and Federal authorization will not be a factor that can be considered in determining stringency. However, if the provisions of a non-authorized State environmental regulation are pertinent to the conditions at a CERCLA site, the State requirements are potential ARARs; they are more stringent than Federal law in the sense that they add to Federal law requirements that are specific to the environmental conditions in the State.[9]

- State Programs That Have a Federal Counterpart: A State may have promulgated requirements that parallel those associated with a Federal environmental program, but the State may not have sought or gained authorization for the program for various reasons. In the case of RCRA, a State may be denied authorization because of a lack of equivalency or consistency of all State requirements to such an extensive body of Federal requirements. Also, a State may only have partial authorization to implement select portions of RCRA. In the case of CERCLA, the Federal statute does not provide States with the opportunity to gain authorization for the administration of Superfund law. In neither case, however, does Federal law preclude a State from promulgating, administering, and enforcing requirements independently that parallel requirements of Federal law. For example, States may develop wetlands legislation, regulations or requirements that vary from Federal wetlands requirements. If these laws are deemed potential ARARs, a comparison of the requirements is necessary to assure that "more stringent" State requirements are identified.

The State law may contain requirements that are exclusive (i.e., requirements that have no Federal counterpart) and are easily distinguished as

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[9] Note that for a State ban on land disposal of hazardous waste to be a potential ARAR, it must also meet the criteria listed in CERCLA §121(d)(2)(C).

"new" requirements. These "new" requirements are more stringent because they add to Federal law requirements that are specific to the State. However, if "parallel" or "similar" provisions exist, a determination of the "more stringent" of the two must be made through a careful comparison.

A State requirement that imposes a numerical standard is not difficult to compare to a Federal counterpart. For the State requirement to be more stringent, it may, for example, increase the number of regulated facilities or impose a more stringent pollutant discharge limitation. Sometimes State and Federal requirements may differ because of waiver or exception provisions. In such cases, the State requirement is more stringent if the Federal requirement permits consideration of waivers or exceptions, such as waivers for economic hardship, cost effectiveness, or funding limitations, but the State requirement does not.

State requirements that are clearly less restrictive than Federal counterparts are not ARARs. State requirements that are equivalent to but not more stringent than Federal requirements are those that are: (1) identical to Federal requirements, i.e., enacted verbatim; or (2) not identical to Federal requirements but are substantively equivalent, i.e., that use the same or a different approach to achieve an identical result. In such situations, by complying with the Federal ARAR, the State requirement will have been adequately considered.

7.1.2.3 Requirements That Are Not Directly Comparable

Federal and State requirements may call for vastly different approaches to regulating the same contaminant, making a determination of the more stringent requirement somewhat difficult. For example, 40 CFR section 192.32(b) requires that releases of radon-222 from uranium byproduct materials to the atmosphere be limited so as not to exceed an average release rate of 20 picocuries per square meter per second (pCi/m^2s).

A similar State requirement may be as follows:

> Radiation Control Regulations, Title 17, Chapter 41, Section 17.45. Wastes, tailings, or stockpiled ore from active or inactive mining, milling, or manufacturing operations shall be kept in such a manner so as not to release radon-222 to the air in excess of $3x10^{-9}$ uCi/ml.

These standards are difficult to compare because of the use of a rate in the Federal requirement, as opposed to the use of a concentration level in the State requirement.

If the actions required by each of the two statutes result in a predictable and measurable level of cleanup, the determination of the more stringent requirement is clear (e.g., determine which requirement leaves less ground-water contamination at a CERCLA site or which one requires a greater percentage removal of a contaminant). However, the determination of the more stringent of two requirements that mandate different design or performance standards may become more difficult when the results of the actions are not clearly predictable because they are measured via monitoring procedures after the remedial activity (e.g., a landfill liner that is required to be "impermeable" versus a liner that shall be of a specified thickness and composed of a certain material). The demonstration of a more stringent State requirement in this case requires evidence in the form of performance data, which may be unavailable.

The lead and support agencies should communicate closely to reach an agreement on the most stringent, site-specific requirement to follow. The decision is to be based on best engineering judgment and not on completion of extensive testing or exhaustive research. Should a dispute arise, dispute resolution processes that have been established between the State and EPA are to be followed. The communication process and dispute resolution procedures are discussed in Section 7.3 of this chapter.

7.2 AN EXAMINATION OF SEVERAL TYPES OF STATE LAWS

7.2.1 State Siting Requirements

State siting requirements are a broad class of State requirements dealing with restrictions on the location of new, existing, and expanding hazardous waste treatment, storage, and disposal (TSD) facilities. Considerable independent development of State laws governing siting of hazardous waste facilities has occurred. In States that are authorized to administer and enforce the provisions of RCRA, siting requirements are at least as stringent as the siting location standards found in the Federal requirements of RCRA (which are briefly described in Section 7.2.1.1). However, because of the current lack of extensive Federal siting requirements, many States have either added technical requirements to land disposal options or added types of locations that must be specially considered. A 1987 survey of State requirements has shown that numerous State siting programs exist, and that the programs lack consistency in scope and vary in stringency.[10] A thorough review and determination of the eligibility of State siting requirements is, therefore, required during the process of State ARARs identification.

In this section, State siting criteria are reviewed, based on the eligibility criteria -- State ARARs must be "promulgated" and "more stringent." First, a brief overview of Federal siting criteria is presented as a reference for comparing State requirements on the basis of stringency. Common State location standards are reviewed. Finally, several issues regarding State siting ARARs are examined. For example, the application of siting requirements may depend on whether the TSDF is "existing" or "new." A discussion of this issue is presented in Section 7.2.1.3.

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[10] Source: TBS (Temple, Barker, and Sloane, Inc.). Review of State Hazardous Waste Facility Siting Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

7.2.1.1 Overview of Existing Federal Siting Requirements and Criteria[11]

The current location standards that restrict the siting of new hazardous waste facilities under RCRA are located in 40 CFR section 264.18. These standards restrict the location of or affect the design and operation of hazardous waste TSD facilities in three environmental settings: (1) fault zones; (2) 100-year floodplains; and (3) salt dome formations, salt bed formations, underground mines, and caves. In addition, two permit writers' guidance manuals, "Criteria for Location Acceptability and Existing Applicable Regulations -- Phase I" and the "Vulnerable Hydrogeology Guidance Document," contain criteria or other information useful in designing a remedy and that could be TBCs.

EPA, as authorized by §3004(o)(7) of the Solid Waste Disposal Act as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, is currently developing specific "criteria for the acceptable location of new and existing TSD facilities as necessary to protect human health and the environment." EPA intends to cover several locations governed by these criteria, including wetlands, and to consider the relationship of a facility's location to ground and surface waters. The final rule may include bans, technical demonstrations, specific unit closure requirements with extended care, additional design and operating requirements, or a combination of these responses. EPA expects that the final rule will replace the existing location standards contained in 40 CFR section 264.18 and create a new Subpart T to Part 264. When the rule becomes final, States that elect to receive authorization to implement HSWA requirements must promulgate location standards that are at least as stringent. HSWA location standards will be a new baseline against which location requirements that are potential ARARs are measured for stringency in non-authorized States. Also, EPA is developing policies on how the cleanup of CERCLA sites will be affected by the new standards. These policies will impact development of future State location standards in authorized States.

7.2.1.2 Eligibility of Siting Requirements as State ARARs

In developing the location criteria required by HSWA, EPA conducted a study of State location standards.[12] This study provided data for the analysis of the regulatory options EPA has developed for location standards. A summary of the information that was gathered is presented in this Section. The objective of presenting this information is to alert personnel responsible for the identification or review of State ARARs to State siting criteria that may qualify as ARARs and to issues pertinent to the application of those criteria.

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[11] Source for material in this section: NUS Corporation, Summary Background Information Document for the Development of Subtitle C Location Standards under Section 3004(o)(7) of RCRA. U.S. EPA, Washington, D.C., 1988a.

[12] Source: TBS (Temple, Barker, and Sloane, Inc.). Review of State Hazardous Waste Facility Siting Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

Currently, 33 States have imposed restrictions on the location of hazardous waste facilities that are more extensive than the existing Federal standards contained in RCRA (see Exhibit 7-2). The remaining 17 States have location controls (either in the form of regulations or guidance) that are equivalent to, but not more stringent than, RCRA standards.[13]

Promulgated Siting Requirements

The eligibility of location standards as potential State ARARs also depends on whether the requirements are promulgated, i.e., legally enforceable and of general applicability, as discussed in Section 7.1. Exhibit 7-3, which lists the 33 States that have met the "more stringent" criterion of State ARARs, illustrates whether the States also have requirements contained in legally enforceable statutes or regulations. Thirty-two of these States possess siting criteria that qualify as potential ARARs based on this premise.

The requirement must also be of general applicability, i.e., it was not promulgated specifically for application to CERCLA remedial actions. As can be seen in Exhibits 7-5 through 7-7, State siting requirements may address many criteria specific to the site's location and its topographic, hydrologic, and geologic characteristics. In order to be eligible to be State ARARs, promulgated siting criteria must generally be applied throughout the State (or the area described by the statute) in determining the suitability of any site for waste disposal. In the exhibits, requirements that qualify as potential ARARs are either designated with an "R" (regulatory or statutory requirement) or a "C" (regulatory consideration) in the 33 States that have more stringent requirements. A regulatory consideration indicates that there is not a specific standard, but the State law contains a criterion that must be evaluated or assessed.

More Stringent Siting Requirements

The States that use only siting board review procedures (with or without specific standards) are included in the group of 17 States that are not considered more stringent (as shown in Exhibit 7-4). It should be noted that undergoing review board procedures is not an ARAR. However, any substantive criteria established by a State review board, if legally binding on the review board's operations, may be a potential ARAR.

In addition to review boards, many States have more than one agency involved in the planning, siting, and regulation of hazardous waste facilities. Other agencies may be required to consider such aspects as the adverse impacts of the scenic, historic, cultural, or recreational values of

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[13] If the location standards for these States are part of an authorized RCRA program, the State requirements are to be identified as the ARARs for the site (see Section 7.1.2).

EXHIBIT 7-2

METHOD OF IMPLEMENTATION OF STATE SITING CRITERIA

	State Statutes or Regulations	Guidelines or Site Selection Principles
Alaska[a]	X	
Arizona	X	X
Arkansas	X	X
California	X	
Colorado	X	
Connecticut	X	
Delaware		X
Florida	X	
Idaho[a]	X	
Illinois	X	
Iowa	X	
Kentucky	X	
Louisiana	X	
Maine	X	
Maryland	X	X
Massachusetts	X	
Michigan	X	
Minnesota	X	
Mississippi	X	
Missouri	X	
Nevada[a]	X	
New Hampshire	X	
New Jersey	X	
New York	X	
North Carolina	X	X
North Dakota	X	
Oklahoma	X	
Oregon	X	
Pennsylvania	X	
Rhode Island	X	
Texas	X	X
Virginia	X	
Washington	X	
Wisconsin	X	
West Virginia	X	
Wyoming	X	

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[a] Regulations in these three States are proposed, rather than final.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

the site. When identifying ARARs in States with such agencies, it is important to distinguish promulgated substantive criteria and standards that have regulatory or statutory authority in that State from site selection principles or guidelines that may be TBCs.

7.2.1.3 Summary of State Siting Requirements

This Section discusses several important aspects of State siting requirements as potential ARARs and the importance of identifying the proper State siting requirements in addressing CERCLA actions.

Common Location Criteria

Exhibit 7-8 highlights the main categories of siting criteria with which the greatest number of States is concerned. The protection of some of these areas may be under State legislation other than RCRA-related laws, such as location-specific requirements of other Federal programs that are authorized to States (shown in Appendix B).

State laws dealing with environmentally sensitive areas may range from specific quantitative requirements, such as setback distances expressed in miles or feet from the area, to general regulatory statements prohibiting facility location in areas where human health or the environment will be affected. States also approach the issue of protecting ground and surface water through a range of criteria, including general consideration of proximity to ground and surface water and prohibitions of facilities in certain locations, such as over recharge zones or aquifers; quantitative setback distances from water supplies or other water bodies; quantitative thickness or hydraulic conductivity in soil barriers; and designation of acceptable soil or rock type for facility siting. Many State laws and regulations contain highly specific numerical requirements in these areas; others, such as Colorado, only require "that there be some distance to ensure that hazardous materials will have no impact on the bodies of water." If these types of requirements are promulgated, both are potential ARARs.

Buffer zones can also vary, ranging from specific setback distances from residences, churches, schools, or hospitals to general statements precluding "interference" with "population areas" (neither term being defined). Requirements also may differ between land-based and non-land-based (e.g., incinerators) requirements. Consideration of air quality impacts may be triggered in either case.

A requirement in four States (California, Missouri, Rhode Island, and North Carolina) is one in which siting depends on waste type. The State of Missouri limits wastes according to the corresponding vapor pressure, in order to decrease volatile releases. In the other three States, location restrictions differ according to highly specific classification systems for wastes. These classes define the wastes that are restricted for disposal in certain locations by the type or degree of hazard, ranging from waste that is "highly restrictive" (Rhode Island) to waste "containing pollutants that could be released above certain concentrations and cause degradation of waters" (California) to waste that is "nonhazardous" (North Carolina). All definitions require careful examination, as they may or may not be identical to RCRA definitions of hazardous waste.

Applicability or relevance and appropriateness of requirements to land-based and non-land-based facilities may also vary within each State. The trend seen in the TBS survey is that non-land-based facilities are being addressed more frequently, with restrictive criteria being applied according to the location of the site. Determination of the proper classification of requirements necessitates a careful examination of the definition of the regulated facility contained in the promulgated regulation or law.

New and Existing Facilities

With respect to CERCLA remedial actions, State location standards might be identified as potential ARARs when:

- An existing hazardous waste site is present in a restricted location and a corresponding action is called for (be it immediate removal, remediation, design and operating demonstration, or modified care); or
- A new hazardous waste unit is created in a restricted location through treatment or consolidation and placement; or
- A non-land-based unit is brought on site.

Significant differences may exist between State location standards that cover new units and those standards that cover existing units, and the State's application of the appropriate category of regulations to a Superfund site is subject to the State's statutory definition of each. Because Superfund sites generally represent pre-existing (and unplanned) situations, the limitations for existing facilities may not apply to Superfund sites. New remedial activities on site, such as the placement of "old" treated waste in a "new" unit or the use of a mobile incinerator or air stripping, could be subject to the limitations for new facilities or could be limited by requirements for existing facilities. Again, determination of the proper set of standards based on the jurisdictional prerequisites is a critical part of the process of identifying potential State ARARs for siting.

Exhibit 7-3 shows whether each State applies siting criteria to new, expanding, and existing facilities. States have shown an increasing concern with existing and expanding facilities because of facility failures that have needed to be addressed.

EXHIBIT 7-3
APPLICABILITY OF STATE SITING CRITERIA

	New Facilities Only	New and Expanding Facilities	New, Expanding, and Existing Facilities
Alaska[a]		X	
Arizona	X		X
Arkansas	X		
California			X
Colorado	X		
Connecticut	X		
Delaware			X
Florida	X		
Idaho[a]		X	
Illinois	X		
Iowa	X		
Kentucky			X
Louisiana			X
Maine			X
Maryland	X		X
Massachusetts	X		X
Michigan		X	
Minnesota			X
Mississippi	X		
Missouri			X
Nevada[a]	X		
New Hampshire	X		
New Jersey		X	
New York	X		
North Carolina	X		X
North Dakota			X
Oklahoma			X
Oregon			X
Pennsylvania			X
Rhode Island			X
Texas	X	X	
Virginia		X	
Washington		X	
Wisconsin		X	
West Virginia	X		
Wyoming			X

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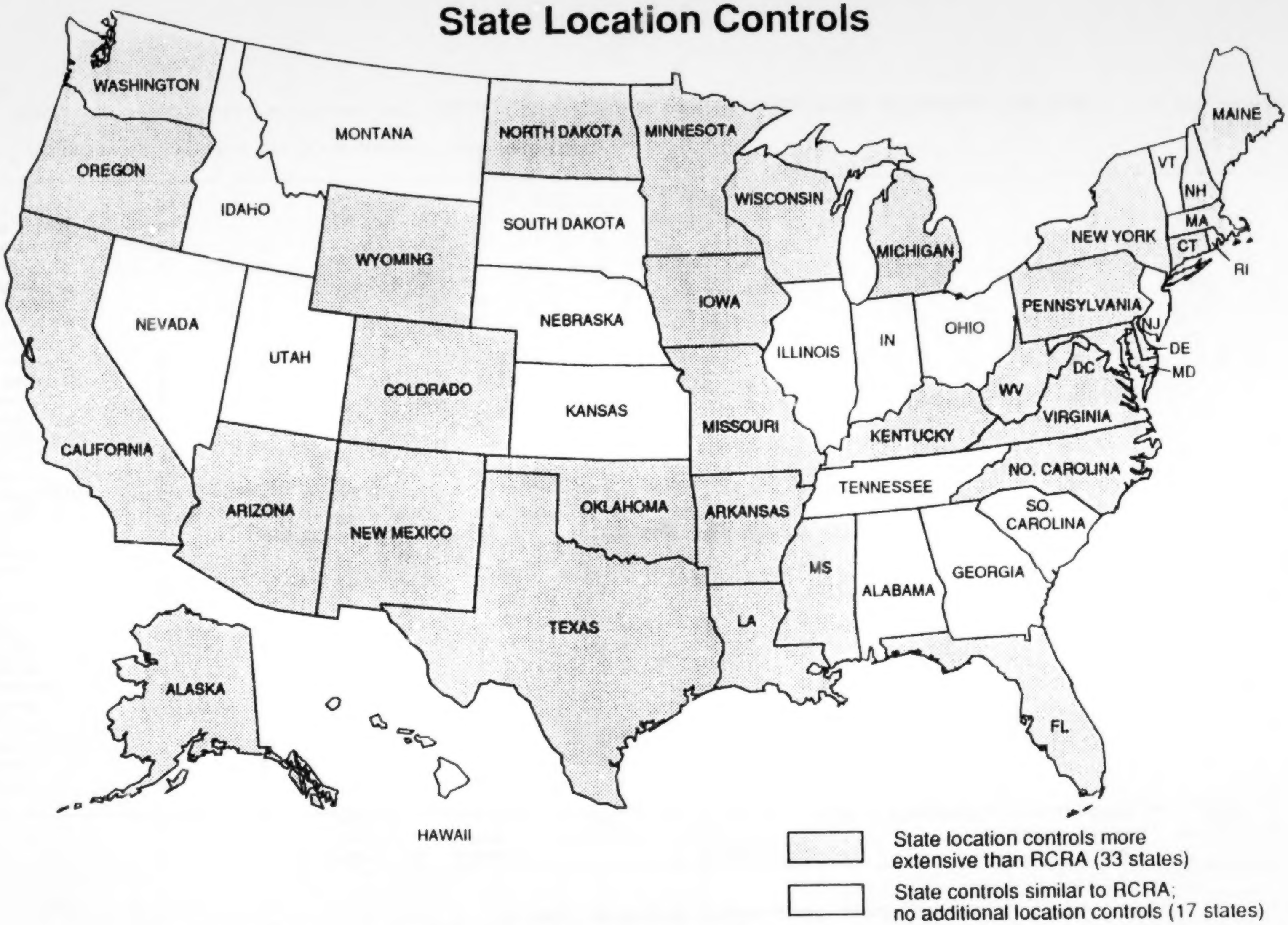
[a] Regulations in these three States are proposed, rather than final.

NOTE: A State-specific interpretation of the definitions of "new" and "existing" facilities in relation to a given CERCLA action is required for determination of the set of requirements that may be potential ARARs.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

Exhibit 7-4

State Location Controls


WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
MAINE
VT
NH
OREGON
IDAHO
SOUTH DAKOTA
WISCONSIN
MA
NEW YORK
CT
RI
MICHIGAN
WYOMING
IOWA
PENNSYLVANIA
NEVADA
NEBRASKA
UTAH
ILLINOIS
IN
OHIO
NJ
DE
MD
DC
COLORADO
KANSAS
WV
VIRGINIA
MISSOURI
KENTUCKY
CALIFORNIA
NO. CAROLINA
TENNESSEE
ARIZONA
OKLAHOMA
ARKANSAS
SO. CAROLINA
NEW MEXICO
MS
GEORGIA
ALABAMA
TEXAS
LA
ALASKA
FL
HAWAII
▨ State location controls more extensive than RCRA (33 states)
☐ State controls similar to RCRA; no additional location controls (17 states)

Source: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C. 1987a

EXHIBIT 7-5

AREAS IN WHICH THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES IS PROHIBITED OR RESTRICTED BY VARIOUS STATES

	Wetlands	Parks, etc.	Endangered Species Habitat	Recharge Zones, Aquifers	Historical Areas	Mining, Subsidence Areas	Coastal Areas	Watersheds	Karst Areas	Dam Hazard Areas	Agricultural Areas
Alaska[a]	R	R	R	R							
Arizona		G	G		G	R,G					
Arkansas	R	G	G	R	G				R		
California							R				
Colorado											
Connecticut	R										
Delaware	G		G	G		G		G	G		
Florida		C		C	C						
Idaho[a]						R					
Illinois						R					
Iowa	R		R		R	R			R	R	
Kentucky									R		
Louisiana											
Maine	R	R	R	R				R			
Maryland	R,G	G	R	R,G		G	G	G	G	G	
Massachusetts	R	R		R			R	R			
Michigan	R			R			R				
Minnesota	R								R		
Mississippi											
Missouri	R			R					R		
Nevada[a]	R	R	R								
New Hampshire	R			R				R			
New Jersey	R	R	R			R	R	R	R		R
New York		C	C	C		C					
North Carolina	G	G	G	R	G	R		R	R		
North Dakota				R							
Oklahoma											
Oregon	R	R			R		R	R			
Pennsylvania	R	R	R	C	R			R	R		R
Rhode Island	R		R	R			R				
Texas	R	G	G	R	G	G	G				G

[a] Regulations in these three States are proposed, rather than final.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

EXHIBIT 7-5 (continued)

AREAS IN WHICH THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES IS PROHIBITED OR RESTRICTED BY VARIOUS STATES

	Wetlands	Parks, etc.	Endangered Species Habitat	Recharge Zones, Aquifers	Historical Areas	Mining, Subsidence Areas	Coastal Areas	Watersheds	Karst Areas	Dam Hazard Areas	Agricultural Areas
Virginia	R	R	R		R	R			R	R	
Washington	R	R	R	R		R	R	R			R
West Virginia	R			R		R			R	R	
Wisconsin	R		R								
Wyoming											

Key: R = Regulatory or statutory requirement
G = Guideline or site selection principle
C = Regulatory consideration

EXHIBIT 7-6

SITE HYDROGEOLOGIC AND GEOLOGIC CRITERIA FOR THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES

	Depth to Water Table	Depth to Aquifer	Surface, Aquifer Water Quality	Hydraulic Conductivity	Thickness of Soil	Hydraulic Gradient	Time of Travel	Ground Water Flow Direction	Soil/ Rock Type	Slope
Alaska[a]							R			
Arizona	R		G						G	
Arkansas	R			G	G	G	G		R	
California	R			R	R					
Colorado				R	R		R			
Connecticut			R							
Delaware	G		G	G	G	G		G	G	G
Florida										
Idaho[a]	R				R					
Illinois										
Iowa		R								
Kentucky	R									
Louisiana										
Maine				R	R			C		
Maryland		G			G					
Massachusetts			C				R			
Michigan				R	R					
Minnesota	R									
Mississippi	R			R	R				R	
Missouri		R		R	R				R	
Nevada[a]	R									
New Hampshire				R	R		R			
New Jersey	R						R	R		
New York									C	C
North Carolina	R			R	R					
North Dakota										
Oklahoma	R			R	R				R	
Oregon			R							
Pennsylvania									R	R
Rhode Island									R	

[a] Regulations in these three States are proposed, rather than final.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

EXHIBIT 7-6 (continued)

SITE HYDROGEOLOGIC AND GEOLOGIC CRITERIA FOR THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES

	Depth to Water Table	Depth to Aquifer	Surface, Aquifer Water Quality	Hydraulic Conductivity	Thickness of Soil	Hydraulic Gradient	Time of Travel	Ground Water Flow Direction	Soil/ Rock Type	Slope
Texas		R	G	R	R	G			R	G
Virginia										R
Washington		R					R			R
West Virginia										
Wisconsin				R					R	
Wyoming									R	R

Key: R = Regulatory or statutory requirement
G = Guideline or site selection principle
C = Regulatory consideration

EXHIBIT 7-7

STATE SETBACK CRITERIA FOR THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES

	Property Lines	Supply Wells	Surface Water	Recharge Zones, Aquifers	Roads, etc.	Residences, etc.	Airports	Faults/ Seismic Areas	Minimum Site Area	Nuclear Facilities
Alaska[a]	R	R	R		R					
Arizona	G	C	G		C	C				
Arkansas	R	G	G		R	R	G			
California								R		
Colorado			R					R		
Connecticut	R									
Delaware		G	G			G		G		
Florida	C		C							
Idaho[a]	R	R	R			R	R	R		
Illinois		R				R		R		
Iowa										R
Kentucky										
Louisiana	R									
Maine	R	R								
Maryland			G		G			R	G	
Massachusetts	R	R		R		C				
Michigan	R									
Minnesota			R							
Mississippi						R				
Missouri	R	R						R		
Nevada[a]		R	R			R		R		
New Hampshire	R	R	R	R		R				
New Jersey		R				R				R
New York		C	C	C	C	C	C			
North Carolina	R	R	R			R		R	G	
North Dakota									R	
Oklahoma	R								R	
Oregon	R		R			R	R			
Pennsylvania		R	R			R	R	R		
Rhode Island		R	R							
Texas	G	G				R				

[a] Regulations in these three States are proposed, rather than final.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

EXHIBIT 7-7 (continued)

STATE SETBACK CRITERIA FOR THE LOCATION OF HAZARDOUS WASTE TSD FACILITIES

	Property Lines	Supply Wells	Surface Water	Recharge Zones, Aquifers	Roads, etc.	Residences, etc.	Airports	Faults/ Seismic Areas	Minimum Site Area	Nuclear Facilities
Virginia			R	R		C		R		
Washington	R	R	R			R				
West Virginia										
Wisconsin	R	R	R		R		R			
Wyoming		R	R							

Key: R = Regulatory or statutory requirement
G = Guideline or site selection principle
C = Regulatory consideration

EXHIBIT 7-8

COMMON STATE SITING CRITERIA

Criterion	Number of States[a]
Protecting Environmentally Sensitive Areas	
Wetlands	23
Endangered Species Habitats, Gamelands, and Fish Hatcheries	17
Parks, Preserves, and Recreational Areas	16
Underground Mining/Subsidence Areas	13
Protecting Ground Water and Surface Water	
Distance to Supply Wells and Water Supplies	20
Distance to Surface Water	20
Recharge Zones and Aquifers	18
Depth to Water Table or Aquifer	17
Hydraulic Conductivity and/or Thickness of Soil	15
Soil of Rock Type	12
Karst Areas	12
Ensuring Adequate Buffer Zones	
Distance to Property Lines	18
Distance to Residences	17

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[a] Includes proposed criteria.

SOURCE: TBS (Temple, Barker, and Sloane, Inc.) Review of State Hazardous Waste Facility Criteria, Revised Draft Final Report. U.S. EPA, Washington, D.C., 1987a.

Waivers and Override Procedures

Many State regulations have waivers to the siting requirements for "temporary" or "emergency" situations.[14] These waivers are carefully defined in terms of: (1) duration; (2) circumstances that justify their use (for example, a limit on the amount of money that can be spent to construct temporary facilities); (3) necessity of public involvement; and (4) whether the permit may be renewed.

Some limits on the use of waivers are designed to assure that the waivers are temporary. For example, Florida grants a permit for a temporary waste landfill in an emergency for no more than 6 months; Montana grants a variance, but there must be a public hearing, and the variance only lasts one year (although it can be renewed). Remedial actions at Superfund sites may qualify for waivers, depending upon their design and the particular requirements in that State.

Bans

CERCLA §121(d)(2)(C)(ii) provides that:

> "... a State standard, requirement, criteria, or limitation (including any State siting standard or requirement) which could effectively result in the State-wide prohibition of land disposal of hazardous substances, pollutants, or contaminants shall not apply."

The application of this prohibition is limited, however, by criteria in §121(d)(2)(C)(iii) and (iv). Section (iii) states that:

> "Any State standard, requirement, criteria, or limitation referred to in clause (ii) shall apply where each of the following conditions is met: (I) The State standard, requirement, criteria or limitation is of general applicability and was adopted by formal means. (II) The State standard, requirement, criteria or limitation was adopted on the basis of hydrologic, geologic, or other relevant considerations and was not adopted for the purpose of precluding on-site remedial actions or other land disposal for reasons unrelated to protection of human health and the environment. (III) The State arranges for, and assures payment of the incremental costs of utilizing a facility for disposition of the hazardous substances, pollutants, or contaminants concerned."

Section (iv) covers the situation in which one State initiated a lawsuit against the Agency prior to May 1, 1986 (Picillo site, Rhode Island). It provides that the remedial action will conform to the State standard and that the State shall assure the availability of an off-site facility.

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[14] Note that waivers in State regulations are to be distinguished from waivers provided by CERCLA §121(d)(4) (e.g., for inconsistent application of a State requirement), which may be exercised by EPA, if warranted.

One example of a State law that may meet the ban criteria is Florida's prohibition on new landfills. The Florida Department of Environmental Regulation enacted a prohibition on new land disposal facilities because soil and ground-water conditions throughout the State precluded the identification of appropriate sites. According to the Florida Resource Recovery and Management Act, §403.7222(2):

> "The Legislature declares that, due to the permeability of the soil and high water table in Florida, future hazardous waste landfills shall be prohibited. Therefore, the Department of Environmental Regulations shall not issue a permit pursuant to §403.722 for a newly constructed waste landfill."

(The section allows permitting of temporary landfills in response to a hazardous waste management emergency for a period of up to 6 months.)

The Florida prohibition may meet the criteria in CERCLA because it is authorized under the RCRA program; the RCRA program does not allow authorization of a State program containing a prohibition on TSD facilities "which has no basis in human health or environmental protection" (40 CFR 271.4(b)). Also, the State is in the process of arranging for utilization of a disposal facility that will meet its needs.

Note that the Florida prohibition applies only to new facilities. The State recognizes that there are existing waste piles and surface impoundments that may be unable to achieve clean closure and will have to close as landfills.[15] Therefore, the provision would allow closure of a landfill with waste left in place.

Effective January 1, 1991, land disposal of hazardous waste will be prohibited in Louisiana (a RCRA-authorized State), according to Part VIII of the Louisiana Hazardous Waste Control Law, 1141.1E. A few waiver provisions will be included, but their applicability to CERCLA sites is presently unknown.

7.2.2 Discharge of Toxic Pollutants to Surface Waters

Both on-site and off-site CERCLA remedial actions may involve discharges of wastewaters to surface waters. The control of discharges of pollutants, including toxics, to waters of the United States is required by the CWA.[16] The 1987 CWA amendments require States to: (1) identify water bodies where the discharge or presence of toxic pollutants listed pursuant to CWA §307(a) could reasonably be expected to interfere with the attainment of designated uses; and (2) adopt numeric criteria for such toxic pollutants applicable to the water body that are sufficient to protect the designated use (CWA §303(c)(2)(B)). The substantive requirements of the State's toxic pollutant control program may be ARARs for CERCLA discharges.

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[15] See Chapter 2 of Part I for definition of terms under RCRA.

[16] See Chapter 3 of Part I for further discussion of ARARs under the CWA.

States may regulate toxic pollutants with numerical criteria, narrative criteria, or a combination of the two. Limitations on discharges to water of toxic pollutants are often expressed in narrative (non-quantitative) terms.

Pollutants that lend themselves to a chemical-specific analytical approach can be measured on an individual basis and their toxic properties evaluated. For these pollutants, States may have developed numerical criteria. However, the development of quantitative criteria for the entire possible range of toxic pollutants beyond those listed pursuant to CWA §307(a) would require resources considerably beyond current capabilities.

In addition to the resource constraints, not all toxic substances can be analyzed according to a chemical-specific analytical approach. For these reasons, the regulation of toxic effluents often relies on biological monitoring methods in which the harmful toxic effects of the entire effluent are examined. Such an approach, called a general toxicity or a whole effluent approach, is usually applied when control of a combination of pollutants is desired, when instream conditions are complex, or when the State has not adopted numeric criteria for potential pollutants.[17] These requirements will be expressed in terms of specific toxicity testing procedures or whole effluent toxicity limits. Although these requirements are non-numerical, the substantive aspects of the requirements, if promulgated, are potential ARARs for CERCLA discharges.

Even when State standards rely on narrative criteria, such as "no toxics in toxic amounts," the State is required by 40 CFR section 131.11(a)(2) to support the narrative criteria with specific methods for identifying, analyzing, and limiting point-source discharges of toxic pollutants. These methods, if promulgated, are then incorporated into the State water quality standards. According to the EPA Water Quality Standards Handbook, support for narrative criteria includes the specification of such factors as: (1) toxicity bioassay test; (2) number and type of indicator organisms; (3) application factors; (4) water body design conditions; and (5) instream biological sampling procedures.[18] Any pertinent State policies or guidance used to interpret the narrative criteria, while not ARARs, should be considered in determining the remedy.

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[17] See Chapter 3 of Part I for more information on the regulation of toxic effluents.

[18] The Water Quality Standards Handbook cites the Pennsylvania Water Quality Standards as illustrating the standard-setting process. In Pennsylvania, there are certain parameters for which criteria have been established. However, the Pennsylvania regulations also apply to substances for which specific criteria have not been established ("... the general criterion that these substances shall not be inimical or injurious to the designated water use applies"). The Pennsylvania standards define technical procedures to be used to establish a "safe concentration value."

Toxics Discharge Prohibitions

A number of States have considered administering general prohibitions on the discharge of toxic pollutants that are known carcinogens or are known to exhibit other qualities of toxicity. Limitations on the amount of the discharge vary on a State-by-State basis in the States' proposals. In addition, the definition of a facility that is regulated by the prohibition may vary in the States' proposals. These requirements, if promulgated, may be applicable or relevant and appropriate to CERCLA on-site discharges. It is important to note that it is necessary to examine the specific jurisdictional prerequisites of the law when identifying it as a potential ARAR.

In one State, California, a toxics discharge prohibition has been enacted into State law. Other States, including Oregon, Louisiana, New York, Massachusetts, Missouri, Hawaii, and Tennessee, have been considering proposals based on California's.

If any of the proposed legislation in the States listed above becomes promulgated in State statutes or regulations, careful attention will need to be given to the language that defines the group of regulated facilities. With respect to CERCLA actions, Regional staff may find it necessary to request a legal interpretation of a definition from State officials.

7.2.3 Antidegradation Requirements for Surface Waters

As a condition for approval of State water quality standards, EPA requires all States to adopt statutes or regulations that establish a policy for controlling the degradation of high quality waters (waters for which existing quality is higher than "fishable/swimmable"). In addition, States may promulgate other antidegradation requirements for surface waters which differ from those adopted pursuant to the CWA. If a CERCLA site cleanup involves a point-source discharge of treated effluent to high quality surface waters, a State's antidegradation statute may be an ARAR for the new release. If protective State standards have been promulgated under an antidegradation statute, proposed CERCLA discharges to high quality receiving waters could be prohibited or limited.

Antidegradation statutes or regulations are typically expressed in narrative and non-quantitative terms. However, pursuant to 40 CFR section 131.12, the States must also identify the methods for implementing the antidegradation requirement, i.e., the State should identify the requirements or set of requirements through which the antidegradation goals are implemented on a site-specific basis. The requirement is typically referred to as an "antidegradation requirement" (that is, a requirement against degradation), but is sometimes called a "nondegradation requirement." The requirement may be located in any of the States' water quality standards that control point source discharges.

In general, antidegradation standards for surface waters differ from State to State, but those which have been adopted pursuant to the CWA must all include the following four components:

1. Requirements for maintenance of existing instream uses;
2. Requirements for maintenance of high quality waters, unless the State determines that degradation is necessary to accommodate important social and economic development;
3. Requirements for maintenance of Outstanding National Resource Waters (ONRW); and
4. Requirements for achievement of the highest statutory and regulatory controls on point sources of pollution before allowing degradation of high quality waters.

Although the goal of EPA's antidegradation policy is to ensure that States maintain the existing water quality of high quality waters (which should be reflected by the water quality standards), the ultimate test of the policy is whether all existing instream uses are protected. State requirements can recognize that water quality may be allowed to deteriorate under specified circumstances, as long as instream uses are protected. ONRW, however, represent a special group of high quality waters. The ONRW designation probably would be reserved for water in such areas as National or State parks, wildlife refuges, and other waters of exceptional significance. In contrast, it is the intention of the antidegradation policy to protect the existing quality of designated ONRW absolutely, i.e., for these waters, water quality and not instream uses is the prevailing criterion. States may prohibit new releases to ONRW; this requirement, if promulgated, is a potential ARAR for CERCLA discharges to ONRW.

In some cases where instream criteria of water quality standards are not being achieved, designated uses are also not being attained. If the State is convinced that a designated use is not attainable, specified procedures must be followed for changing the designation. It should be noted, however, that the technology-based treatment requirements under §§301(b) and 306 of the CWA represent the minimum level of control that must be imposed on wastewater discharges, including CERCLA discharges. If the State is committed to achieving the designated use, all permits for new point-source discharges to the stream must reflect a level of treatment that will achieve the instream use. Although permits and other administrative requirements are not ARARs for CERCLA discharges, achievement of the instream use for a new release as a result of the CERCLA response action is a substantive requirement and is a potential ARAR for CERCLA discharges.

The identification of State antidegradation requirements as potential ARARs may pose some practical problems for Superfund remedial actions. Because antidegradation statutes and regulations are often not expressed in quantitative terms, the State must additionally specify the corresponding requirements. Similarly, the necessary State determinations in these statutes and regulations authorizing degradation are seldom quantitative. Therefore, it may require additional attention of State and Regional staff to determine whether an on-site remedial action will result in degradation, whether that degradation threatens existing (or potential) uses, and whether any necessary findings to authorize degradation can be made.

7.2.4 Antidegradation Requirements for Ground Water

Antidegradation requirements for ground water are increasingly common in State laws. Generally, antidegradation laws are prospective and are intended to prevent further degradation of water quality. At a CERCLA site, therefore, a State ground-water antidegradation law might preclude the injection of partially treated water into a pristine aquifer. It would not, however, require cleanup to the aquifer's original quality prior to contamination, nor would it preclude the reinjection of partially treated water back into the already contaminated portion of the aquifer as long as the reinjection does not increase the existing level of contamination.

7.3 THE PROCESS OF COMMUNICATING STATE ARARs

7.3.1 Procedures for Ensuring Timely Communication of State ARARs

CERCLA §121(d)(2)(A) requires States to identify ARARs "in a timely manner." Timely communication of ARARs allows their efficient and complete consideration during the RI/FS process. It avoids duplication of effort and other time-consuming activities. This Section describes how the objective of timely identification and communication of State ARARS should be met.

The proposed revisions to the NCP describe a specific set of relationships between lead and support agencies. This Section first discusses the responsibilities of the State in the identification of State ARARs. It then describes critical points in the remedial process that require communication of State ARARs. The last Section describes the process of resolving disputes between EPA and the State in the event of a disagreement.

7.3.1.1 The Roles of the State

The design and implementation of remedial actions can occur best when lead and support agencies work together in a partnership arrangement. CERCLA, as amended, and the proposed revisions to the NCP establish particular points at which interaction between lead and support agencies must occur in the pre-remedial and remedial response processes. This section describes the responsibilities of the State and EPA under two scenarios:

- When the State serves as support agency; and
- When the State serves as lead agency.

The responsibilities in identifying State ARARs, to a large extent, remain the same whether the State assumes the lead or support agency role.

When the State is the support agency, however, the procedural issues regarding State ARARs communication become more critical. This role is enhanced because the consideration of State ARARs will depend upon the State's timely communication of adequately documented State ARARs to EPA. Features of the State's roles as support and lead agency are highlighted below.

The responsibilities of the State as the support agency are to:

- Receive and review information from EPA about the nature of the contamination at the site and the preliminary remedial alternatives being considered;
- Interact/ensure coordination with all appropriate State personnel for input on potential ARARs;
- Identify chemical-specific and location-specific State ARARs during the site characterization phase of the RI/FS;
- Identify action-specific ARARs after the initial screening of alternatives;
- Provide justification of State ARARs selected (e.g., promulgated, more stringent, applicable or relevant and appropriate (see Section 7.3.2)) and respond in writing to EPA's requests in a timely manner; and
- Review the ROD for EPA's selection of ARARs and any waivers of State ARARs.

The State as the lead agency has the responsibility to:

- Develop information about the site and the nature of the contamination, as well as about the remedial alternatives being considered;
- Prepare an ARARs request to EPA;
- Interact/ensure coordination with all appropriate State personnel for input on potential ARARs;
- Identify site-specific State ARARs during the appropriate points in the RI/FS process;
- Identify any waiver in the Proposed Plan; and
- Document ARARs in the ROD.

The State, in either role, retains responsibility for identifying State ARARs and communicating them in a timely manner. EPA, in either role, retains sole responsibility for making the final selection of ARARs for the site. In addition, the final authority to waive ARARs remains solely with EPA.

7.3.1.2 Critical Points in the Remedial Process for the Identification and Communication of State ARARs

Several points in the remedial process are particularly important in terms of ARARs identification and communication. ARARs identification is generally tied to preparation of key documents (for example, the RI/FS report) and is critical for making decisions (for example, the selection of the preferred alternative for the Proposed Plan). The two key points during the remedial process that require ARARs identification and communication take place during preparation of the RI/FS report. If State ARARs are identified during other points in the remedial process, such as after the preparation of the Proposed Plan or after the ROD is adopted, EPA will consider the ARAR according to the processes described below.

The following description of the critical phases for the communication of State ARARs assumes that EPA and the State play the roles of the lead and support agencies, respectively.

During Preparation of the RI/FS: The proposed revisions to the NCP indicate that EPA and the State are to initiate discussions about potential ARARs and TBCs during the scoping phase of the RI/FS. Formal letters of request that will require a timely response from the State are to be prepared by EPA at two points during the RI/FS process. First, EPA, as the lead agency, should request in writing potential chemical- and location-specific ARARs from the State no later than the time at which site characterization data are available. After the initial screening of alternatives has been completed (but prior to the initiation of the comparative analysis), EPA should request in writing that the State communicate any action-specific ARARs and any additional potential ARARs that may have been identified based on new information about the site. The State should communicate potential State ARARs and TBCs in writing to EPA within 30 days of receipt of EPA's letters of request.

Following Preparation of the Proposed Plan: There are several reasons why it is critical that the State identify all potential State ARARs for a particular response action prior to preparation of the Proposed Plan. First, EPA, as the lead agency, in consultation with the State, is responsible for identifying a preferred remedial alternative for public comment. In making this determination, it is critical that all potential State ARARs have been identified, analyzed, and fed into the decision-making process. Second, State ARARs are an integral part of determining the standards of control and the remediation levels which assist in fashioning the hazardous waste management approaches. And finally, the timely identification of State ARARs will ensure that the public (including PRPs) and EPA will have an adequate opportunity to comment on the information pertaining to the remedial alternatives, including any proposed waivers from State ARARs.

The public comment period should not be used by States as an opportunity to identify potential State ARARs that could have been identified and submitted to EPA in a timely manner. Nevertheless, a situation may arise where a potential State ARAR is identified and submitted to EPA during the public comment period. When this occurs, EPA will need to give consideration to this new information, as it would any significant comment, criticism, or new data submitted during this comment period. In analyzing this new information, EPA should determine if it is an applicable or relevant and appropriate requirement. If so, the ARAR should be incorporated into the pertinent remedial alternatives and factored into the final decisionmaking process. Where that ARAR prompts a significant change to the information presented in the proposed plan, the lead agency must either document the change in the ROD, or, in some instances, seek additional public comment. (The Guidance on Preparing Superfund Decision Documents; the Proposed Plan and Record of Decision, OSWER Directive 9355.3-02, June 1989, provides criteria for making this determination.)

After the ROD is Adopted: After the ROD has been signed, newly promulgated State ARARs may be identified that could potentially cause EPA to change the remedy selected in the ROD. EPA will incorporate the new State ARAR into the remedial action if it is based on new scientific information that demonstrates that the proposed remedy is no longer protective. This re-evaluation will generally take place at the 5-year review. For any other newly-promulgated State ARARs not meeting the aforementioned criteria, or any existing State ARARs not previously identified (i.e., not submitted in a timely manner), the EPA will use its discretion to determine whether to incorporate them into the remedial action.

7.3.1.3 Dispute Resolution[19]

The proposed revisions to the NCP outline a dispute resolution process that the Regions and States can use during the remedial action process. Typically, conflicts regarding ARARs identification are to be resolved by negotiation at the staff and management levels between the Regional office and the State, with assistance from EPA Headquarters, if warranted. Regardless of the dispute resolution process adopted by the Region and the State, it should be applied to any differences that might impede the response process. Unresolved disputes may ultimately be decided by the Assistant Administrator for Solid Waste and Emergency Response, if necessary.

7.3.2 Documentation of State ARARs

At those sites for which the State is not the lead agency, it is incumbent upon whomever is conducting the RI/FS to provide sufficient information about the site and remedial alternatives to permit the State to identify potential ARARs. In addition, it is the responsibility of the State to provide EPA with adequate information to enable EPA to determine which of the potential State ARARs are actually ARARs at the site under the various remedial alternatives.

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[19] This section refers to procedures to be followed in the absence of a Superfund Memorandum of Agreement (SMOA), which is discussed in Section 7.3.3.

The State, as support agency, should seek to anticipate some of the questions that EPA might raise concerning potential State ARARs. The State should substantiate its submission by including the following:

- Promulgated: evidence that the requirements are legally enforceable and of general applicability, e.g., a bill or statute number, date of enactment or effective date, or description of scope;

- More Stringent: evidence that the requirement meets the criteria for stringency described in Section 7.1.2; and

- Applicable or Relevant and Appropriate: a description of the connection between the statute, regulation, or provision and the site characteristics/remedies.[20]

ARAR identification is a site-specific process. To ensure complete consideration of a State's concern in the remedial design process, it is important for the State to point out the connection between the ARAR it identifies and the characteristics of the site or remedial alternatives under consideration. When the State is providing ARAR information to EPA, the State should explain in as clear and succinct a manner as possible the reasons that each requirement is proposed as an ARAR. A timely communication of ARARs is one that can be used without numerous requests for clarification and detail. Because in many cases only sections of a State statute or regulation may be ARARs, it is important for the State to accurately identify particular provisions and to provide references and citations to clarify its intent.

7.3.3 Superfund Memorandum of Agreement and ARARs

The Superfund Memorandum of Agreement (SMOA) delineates the working relationships between States and EPA Regions and defines their roles and responsibilities.[21] CERCLA, as amended, provides for a cooperative Federal-State relationship in all cleanup activities: pre-remedial, remedial, and enforcement. A SMOA is the mechanism through which non-site-specific, Federal-State roles are to be delineated. SMOAs are not mandatory but are strongly encouraged by EPA.

In terms of ARAR identification, the SMOA can become the mechanism that:

- Defines the requirements for interaction, including timeframes for review of response process documents and materials; and

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[20] This analysis is consistent with that of Federal requirements. See Section 1.2.4 of Part I.

[21] For more information on SMOAs, see Draft Guidance on Preparing a Superfund Memorandum of Agreement (SMOA), OSWER Directive 9375.0-01.

- Establishes a process for resolving disputes about implementation of the procedures in the SMOA or any site-specific assignments.

A SMOA cannot identify in advance which State requirements are ARARs for specific sites. However, by establishing responsibilities for each party in identifying, communicating, and documenting ARARs and TBCs, the Agency hopes to minimize disputes between EPA and the States. The SMOA establishes a working relationship that will protect the technical and substantive interests of all parties, without introducing excessive administrative procedures or delay.

SMOAs are negotiated to cover all Superfund activities in a State and should form the basis of subsequent site-specific agreements. The provisions of a SMOA should remain applicable for a number of years, although annual review and minor modifications may be required.

APPENDIX A

POTENTIAL CLEAN AIR ACT ARARs FROM CLEAN AIR ACT PART C (PREVENTION OF SIGNIFICANT DETERIORATION)

This appendix provides information on the requirements contained in Part C of the Clean Air Act for the prevention of significant deterioration (the PSD program) of air quality in attainment (or unclassified) areas.

A.1 PSD CLASSIFICATION AND IMPLEMENTATION

The PSD regulations (40 CFR Part 52) classify PSD areas as either Class I, Class II, or Class III.[1] Each classification differs in the amount of growth it will permit before significant air quality deterioration would be deemed to occur. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable maximum allowable increase ("increment"), the amount of which varies depending upon the classification of the area. The reference point for determining air quality deterioration in an area is the baseline concentration, which is essentially the ambient concentration existing at the time of the first PSD permit application submittal affecting that area. To date, PSD increments have been established only for sulfur dioxide, nitrogen dioxide, and particulate matter[2] (see Exhibit A-1).

PSD requirements are implemented through a pre-construction review process, conducted either by EPA, or by the State, if EPA has approved the State's PSD plan or if the State has been delegated EPA's authority. The review process requires that new major stationary sources and major modifications be carefully reviewed prior to construction to ensure compliance with the NAAQS and the applicable PSD air quality increments and application of the best available control technology (BACT) on the project's emissions of all regulated pollutants (i.e., pollutants regulated under NAAQS, NESHAPs, and NSPS). Moreover, if application of a control system results directly in the release of pollutants that are not currently regulated under the CAA, the net environmental impact of such emissions must be considered in making the BACT determination for pollutants that are regulated.

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[1] Class I areas have the smallest increments and thus allow only a small degree of air quality deterioration. Certain wilderness areas and national parks are mandatory Class I areas (see 40 CFR section 51.166). Class II areas can accommodate normal well-managed growth. Class III designations have the largest increments and are appropriate for areas desiring a larger amount of development (currently, no areas have been designated Class III). In no case is the air quality of an area allowed to deteriorate beyond the NAAQS. With the exception of the mandatory Class I areas, all clean areas in the country were initially designated as Class II.

[2] PSD increments for particulate matter less than 10 microns in particle size (PM_{10}) are under development.

EXHIBIT A-1

ALLOWABLE PSD INCREMENTS[a]
($\mu g/m^3$)

	Class I	Class II	Class III
Sulfur Dioxide			
• annual	2	20	40
• 24-hour	5[b]	91[b]	182[b]
• 3-hour	25[b]	512[b]	700[b]
Total Suspended Particulate Matter			
• annual	5	19	37
• 24-hour	10[b]	37[b]	75[b]
Nitrogen Dioxide			
• annual	2.5	25[b]	50[b]

[a] 40 CFR section 52.21(c)

[b] Not to be exceeded more than once per year.

A.2 APPLICABILITY OF PSD REVIEW

A.2.1 Stationary Source

A stationary source generally includes all pollutant-emitting activities that belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under common control. Thus, all emissions points at a Superfund site would be considered one stationary source for purpose of determining applicability of PSD review. However, only major new sources or major modifications are subject to this review. Source size is defined in terms of "potential to emit," i.e., the capability at maximum design capacity to emit a pollutant after the application of all required air pollution control equipment and after taking into account all Federally enforceable requirements restricting the type or amount (e.g., prohibition on nighttime operation) of source operation.[3]

A.2.2 Major Source or Major Modification

A "major stationary source" is any new source type belonging to a list of 28 source categories, e.g., petroleum refineries or primary lead smelters, that emit or have the potential to emit 100 tons per year or more of any regulated pollutant. The source categories are identified at 40 CFR section 52.21(b)(1)(i)(a)) (see Exhibit A-2). Any other source type (e.g., pollutant-emitting activities during a Superfund cleanup action) that emits (or has the potential to emit) 250 or more tons of any regulated pollutant per year is also considered a major source. If Federally enforceable controls are imposed that limit emissions to less than 250 tons per year, PSD requirements will not apply.

Where there is an existing major stationary source, a Superfund site could trigger a "modification" to that source. A "major modification" is generally a physical or operational change in a major stationary source that would result in a "significant" "net emissions increase" for any regulated pollutant. Specific numerical cutoffs that define "significant" increases are identified in 40 CFR section 52.21(b)(23) (see Exhibit A-3). A Superfund site would be considered a modification to an existing source (e.g., an ongoing industrial facility) only where the site is physically connected to or immediately adjacent to the existing source, a responsible party (RP) is conducting the cleanup, the RP is also the owner or operator of the existing source, and the CERCLA site is somehow associated with the operations of the existing source. Cleanup actions conducted by other than the owner or operator of the adjacent facility would not be considered a modification to the existing source. This is consistent with the interpretation of

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[3] "Federally enforceable" means that: (1) the restriction must be required by a Federal or State permit granted under the applicable SIP or embodied in the SIP itself, and (2) the source and/or the enforcement authority must be able to show compliance or noncompliance.

EXHIBIT A-2

NAMED PSD SOURCE CATEGORIES[a]

1. Fossil fuel-fired steam electric plants of more than 250 million Btu/hr input
2. Coal cleaning plants (with thermal dryers)
3. Kraft pulp mills
4. Portland cement plants
5. Primary zinc smelters
6. Iron and steel mill plants
7. Primary aluminum ore reduction plants
8. Primary copper smelters
9. Municipal incinerators capable of charging more than 250 tons of refuse per day
10. Hydrofluoric acid plants
11. Sulfuric acid plants
12. Nitric acid plants
13. Petroleum refineries
14. Lime plants
15. Phosphate rock processing plants
16. Coke oven batteries
17. Sulfur recovery plants
18. Carbon black plants (furnace process)
19. Primary lead smelters
20. Fuel conversion plants
21. Sintering plants

EXHIBIT A-2 (continued)

NAMED PSD SOURCE CATEGORIES

22. Secondary metal production plants

23. Chemical process plants

24. Fossil fuel boilers (or combinations thereof) totaling more than 250 million Btu/hr heat input

25. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels

26. Taconite ore processing plants

27. Glass fiber processing plants

28. Charcoal production plants

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[a] Source: 40 CFR section 52.21(b)(1)(i)(a)

EXHIBIT A-3

SIGNIFICANT EMISSION RATES FOR DETERMINING PSD MAJOR MODIFICATIONS[a]

Pollutant	Emissions Rate (tons/yr)
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Particulate matter (Total Suspended Particulates)	25
PM_{10}	15
Ozone (VOC)	40 (of VOCs)
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Mercury	0.1
Vinyl chloride	1
Fluorides	3
Sulfuric acid mist	7
Hydrogen sulfide (H_2S)	10
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (including H_2S)	10
Any other pollutant regulated under the Clean Air Act	Any emission rate

EXHIBIT A-3 (Continued)

SIGNIFICANT EMISSION RATES FOR DETERMINING PSD MAJOR MODIFICATIONS[a]

Pollutant	Emissions Rate (tons/yr)
Each regulated pollutant	Emission rate that causes an air quality impact of 1 $\mu g/m^3$ or greater (24-hour basis) in any Class I area located within 10 km of the source

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[a] Extracted from 40 CFR section 52.21(b)(23).

modification under the CAA, i.e., only changes to a facility by the owner or operator may be considered modifications.

Fugitive emissions are not to be considered in determining whether a source would be a major source (i.e., the 100 or 250 tons/year threshold), except when such emissions come from source categories listed in 40 CFR section 52.21(b)(1)(c)(iii). Fugitive emissions are those emissions that cannot reasonably be expected to pass through a stack, vent, or other functionally equivalent opening, such as a chimney, roof vent, or roof monitor. Fugitive emissions would not be counted in with CERCLA site emissions unless the site is considered a modification to one of the listed source categories.

To determine whether a modification's "net emissions increase" would qualify as "significant," the potential to emit resulting from the physical or operational change must be determined. This amount is added to any other increase or decrease in actual emissions at that source (i.e., the source adjacent to the Superfund site) that are contemporaneous with the particular change (within the preceding 5 years, or in the case of an approved State program, such other period that may be specified therein) and are otherwise creditable.[4] If the total exceeds zero, a net emissions increase is considered to result from the change. For example, if the net emissions increase (i.e., the net difference between the Superfund cleanup activity and increases/decreases at the adjacent facility) is larger than the numerical cut-offs for significant increases (see Exhibit A-3), then the modification is a "major modification."

A.2.3 PSD Area

PSD requirements will be applicable to a Superfund action when such action is a major source or modification for any criteria pollutant and the source is located in a PSD area. A PSD area is one which the State has designated as an attainment area (or not classified because of lack of data). (An area designated as a non-attainment area is not a PSD area.) Although the area may be designated as an attainment area for one or more criteria pollutants, substantive PSD requirements would cover any criteria pollutant emitted on site by a major source or modification at a Superfund site.

A.2.4 Pollutants for Which Area Is PSD

Once the lead agency has determined that the Superfund actions may be a major source or modification located in a PSD area, further analysis of potential emissions should be done to determine which pollutants will be emitted. A PSD area may also be designated non-attainment for particular pollutants. In such a case, if emissions were expected to contain pollutants for which the area is designated attainment and pollutants for which the area is designated non-attainment, both PSD and non-attainment (new source -- see Section 2.1.3 of Chapter 2 of Part II) requirements would be potential ARARs.

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[4] A contemporaneous increase or decrease is creditable only if the relevant reviewing authority has not relied on it in issuing a PSD or other CAA permit for the source, and that permit is still in effect when the increase in actual emissions from the particular change occurs.

A.2.5 PSD Review Applies to Significant Emissions

The PSD review applies to all significant emissions of regulated air pollutants at a major new source, and to significant net increases at a major modification (see Exhibit A-3).[5] In addition, an emission is still considered "significant" if the major source is constructed within 10 kilometers of a Class I area and has an impact on such an area equal to or greater than 1 microgram/cubic meter (24-hour average) for any regulated pollutant. See 40 CFR section 52.21(b)(23)(iii).

The PSD regulations contain specific exceptions for some forms of construction. For example, PSD review requirements do not apply to a major source or modification that is a:

- Nonprofit health or educational institution when such exemption is requested by the governor; or
- Portable source which has already received a PSD permit and proposes relocation.[6]

A.3 SUBSTANTIVE REQUIREMENTS OF PSD REVIEW

A.3.1 Best Available Control Technology

Any major source or modification subject to PSD review (a "PSD source") must ensure application of BACT. BACT requires the maximum degree of reduction of continuous emissions achievable for each regulated pollutant. The analysis to determine what BACT is for a particular source must evaluate the energy, environmental, economic, and other costs associated with each alternative technology, and the benefit of reduced emissions that the technology would bring (some States consider the duration of emissions in this analysis.)

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[5] In determining whether the emissions of a particular pollutant are "significant," the net amount of emissions from all emissions points within a source is estimated.

[6] Other conditions for obtaining a portable source exemptions are that: (1) emissions at the new location will not exceed previously allowed emission rates; (2) emissions at the new location are temporary; and (3) the source will not adversely affect a Class I area or contribute to either any known increment or violation of a NAAQS. The source must provide reasonable advance notice to the reviewing authority of the relocation.

BACT is applied at each emissions point, and is required for each regulated pollutant being emitted by the source in significant amounts (see Exhibit A-3). Moreover, the BACT analysis must also consider emissions of nonregulated toxic pollutants in determining BACT for a regulated pollutant. Thus, for example, if two alternative control devices would provide the same degree of reduction in emissions of the regulated pollutant, but one of them is more effective in controlling unregulated toxic emissions, that device would be more appropriate as BACT. In addition, if there is no economically reasonable or technologically feasible way to accurately measure the emissions, and hence to impose an enforceable emissions standard, the source may be required to use source design, alternative equipment, work practices, or operational standards to reduce emissions of the pollutant to the maximum extent.

A.3.2 Ambient Air Quality Analysis

Each source or modification undergoing PSD review must perform an air quality analysis to demonstrate that its new pollutant emissions will not cause or contribute to air pollution in violation of either the applicable NAAQS or PSD increment.[7] This analysis must be based on the applicable Air Quality Models (EPA-450/2-78-027R) or an approved substitute. The six basic steps in an air quality analysis are as follows:

- Define the impact area of the proposed major source or major modification for each applicable pollutant. To properly establish the impact area (i.e., where the applicable emissions will have a significant impact on ambient concentrations) in order to determine compliance with applicable NAAQS and increments, the PSD source should consult the review agency dispersion modeling contact to receive concurrence on:

  -- Selection of an appropriate dispersion model;

  -- Use of adequate and representative meteorological data; and

  -- Techniques and assumptions to be used in the analysis.[8]

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[7] Some States may exempt a temporary source (e.g., fugitive dust from construction operations) from the increment analysis for particulate matter (see below).

[8] The latest revisions of the EPA documents Guideline on Air Quality Models (revised, July 1986, and Supplement A, 1987) and the Guidelines for Air Quality Maintenance Planning and Analysis, Volume 10 (October 1977) serve as helpful guidelines for acceptable dispersion modeling. However, since no two scenarios are identical, it is the PSD source's responsibility to consult with the review

Determination of the impact area of the proposed source must include all direct emissions, including both stack and quantifiable fugitive emissions of applicable pollutants, and "secondary emissions." Secondary emissions are those that would occur as a result of the construction or operation of the proposed source, but do not come from the source itself (e.g., off-site support facilities). However, temporary emissions, such as those related to construction, need not be considered.

- Establish appropriate inventories. The PSD source is required to compile an emissions inventory of applicable criteria pollutants that have been demonstrated to result in significant impacts. In addition, an inventory of applicable noncriteria pollutants may be required to determine if these pollutants exist or will exist in high concentrations that may pose a threat to human health or welfare. Actual emissions should be used to reflect the impact that would be detected by ambient air monitors.

- Determine existing ambient air concentrations for these pollutants. The air quality analysis for criteria pollutants consists of ambient monitoring data that represents air quality levels in the last year's period preceding the PSD application. EPA has published specific guidelines for a PSD source in Ambient Monitoring Guidelines for Prevention of Significant Deterioration. The use of existing representative air quality data will be permitted in lieu of site-specific monitoring where the data are determined representative and adequate. For pollutants for which NAAQS do not exist, the required analysis will normally be based on dispersion modeling alone. Further, *de minimis* increases of pollutants are exempt from monitoring requirements (see Exhibit A-4).

- Determine how much of the increment is available. Sources that propose to emit sulfur dioxide, nitrogen dioxide, or particulate matter must also perform an analysis to compute how much of the PSD increment in that area remains available to them (see Exhibit A-1). Increment concentration is, in general, that portion of ambient air concentration in an area which results from:

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agency to ensure that the methods and procedures to be used in performing the dispersion modeling are appropriate.

EXHIBIT A-4

DE MINIMIS AIR QUALITY IMPACTS (PSD APPLICABILITY)[a]

Carbon monoxide -- 575 $\mu g/m^3$, 8-hour average;

Nitrogen dioxide -- 14 $\mu g/m^3$, annual average;

Total suspended particulate -- 10 $\mu g/m^3$, 24-hour average;

PM_{10} -- 10 $\mu g/m3$, 24-hour average;

Sulfur dioxide -- 13 $\mu g/m^3$, 24-hour average;

Ozone;[b]

Lead -- 0.1 $\mu g/m^3$, 24-hour average;

Mercury -- 0.25 $\mu g/m^3$, 24-hour average;

Beryllium -- 0.0005 $\mu g/m^3$, 24-hour average;

Fluorides -- 0.25 $\mu g/m^3$, 24-hour average;

Vinyl chloride -- 15 $\mu g/m^3$, 24-hour average;

Total reduced sulfur -- 10 $\mu g/m^3$, 1-hour average;

Hydrogen sulfide -- 0.04 $\mu g/m^3$, 1-hour average;

Reduced sulfur compounds -- 10 $\mu g/m^3$, 1-hour average.

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[a] 40 CFR section 52.21(i)(4)(vii)

[b] No de minimis air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD would be required to perform an ambient impact analysis including the gathering of ambient air quality data.

- Actual emissions from any major stationary sources on which construction commenced January 6, 1975; and

- Actual emission increases and decreases at all stationary sources occurring after the baseline date.

The baseline date is the date after the "trigger" date (August 7, 1977 for sulfur dioxide and particulate matter; February 8, 1988 for nitrogen dioxide) when the first complete PSD application is submitted by a proposed major source or major modification. The area in which the baseline date is triggered by a PSD permit application is known as the baseline area. In general, increment consumption and expansion are based on actual emissions. However, if little or no operating data are available, as in the case of permitted emissions units not yet in operation at the time of the increment analysis, the allowable emission rate must be used.[9]

- Perform a screening analysis for each applicable pollutant. This interim, worst-case scenario analysis will primarily provide the PSD applicant with some essential data:

  - An approximation of the maximum downwind impacts;

  - A general idea of the location of the maximum impacts; and

  - Quick preliminary results.

  Both quantifiable fugitive emissions and stack emissions should be included in the screening analysis. In addition, if secondary emissions are quantifiable and are expected to affect the air quality in the impact area, they should also be included in the screening analysis. If the screening analysis shows that the source will not cause or contribute to a violation of a NAAQS or PSD increment, no refined analysis is required.

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[9] "Allowable emissions" is defined at 40 CFR section 52.21(b)(16) as the emissions rate using the maximum rated capacity of the source and the most stringent of either NSPS/NESHAPs, SIP limitation, or the emissions rate in a Federally enforceable permit.

- Perform a refined analysis to determine projected air quality resulting from emissions of applicable pollutants. The objective is to determine with greater certainty whether the PSD source will in fact cause or contribute to air pollution that results in violation of either a NAAQS or a PSD increment. The refined dispersion modeling analysis will use the emissions inventory and all other data gathered up through the screening analysis. Concurrence from the reviewing agency is recommended before starting the analysis to confirm that the techniques used are considered valid.

A.3.3 Other Impacts Analysis

A source is required to analyze whether its proposed emissions increases will impair visibility or adversely impact soils or vegetation.

A.3.4 No Adverse Impact on a Class I Area

If emissions from a source could impact a Class I area, the regulations require notification to the Federal Land Manager and the Federal official charged with direct responsibility for managing these lands. If the Federal Land Manager demonstrates that emissions from a proposed source would impair air quality-related values, even though the emissions levels would not cause a violation of a NAAQS or the allowable air quality increment, the Federal Land Manager may recommend that the emission not be allowed.

A.3.5 Other Requirements

The regulations solicit and encourage public participation in the PSD review process. Also, post-construction monitoring is sometimes required of the PSD source. However, de minimis amounts under 40 CFR section 52.21(i)(8) (see Exhibit A-4) may be exempt from this requirement. This requirement may also be satisfied by existing monitors.

A.4 NON-ATTAINMENT

Any major source or major modification (same definition as under PSD, except that 100 tons per year is the "major" size threshold for all source categories) that will emit NAAQS pollutants for which an area has been designated non-attainment must comply with the requirements of Part D of the CAA with respect to those pollutants. Many air quality regions are currently non-attainment for ozone. The Part D requirements are as follows:

- Offsets. At the time that the proposed new source is to begin operating, total allowable emissions from all existing sources in the area, including the proposed source, must be "sufficiently less" than total emissions from existing sources allowed under the applicable SIP prior to the permit application. The term "sufficiently less" means emissions reductions that, when considered together with other SIP provisions, would constitute "reasonable further progress" toward attaining the NAAQS. This condition generally requires that the proposed source obtain an offset, i.e., secure an emissions reduction elsewhere in the impact area of emissions of the pollutant(s) that it proposes to emit. The offset must be better than one to one, i.e., the reduction must be greater than the proposed emission. In addition, the reduction must be Federally enforceable. Some States may exempt temporary sources from this requirement.

- Construction moratorium. CAA §110(a)(2)(I) provides that no major stationary source shall be constructed or modified in a non-attainment area if the emissions from the source will cause or contribute to concentrations of any pollutant for which the area is non-attainment unless the non-attainment plan meets the requirements of Part D. Major sources/modifications are subject to offset requirements and the construction moratorium only if they emit in major amounts the pollutant for which the area is designated non-attainment.

- Allowable concentrations. Emissions from the proposed source will not cause or contribute to concentrations in excess of the allowable concentration of the pollutant permitted of new and modified sources under the applicable non-attainment plan.

- Lowest achievable emissions rate. The proposed source must apply the lowest achievable emission rate (LAER) control technology. LAER means for any source the more stringent rate of emissions based on either of the following (40 CFR section 51.165(a)(1)(xiii)):

  -- The most stringent emissions limitation that is contained in the SIP of any State for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

  -- The most stringent emissions limitation that is achieved in practice by such class or category of stationary source.

  LAER must be at least as stringent as an applicable NSPS. The LAER requirement (and other substantive non-attainment new source review provisions) applies to each regulated pollutant emitted by a major new source in a "major" amount -- i.e., in excess of 100 tons per year -- and by a major modification in a "significant" amount (see Exhibit A-3) for which the area is non-attainment.

- Statewide compliance by the owner/operator. The owner or operator of the proposed source demonstrates that all major sources that it owns or operates elsewhere in the State are in compliance with all applicable emission limitations and standards, or are on a compliance schedule to do so.
- Non-attainment plan. The attainment plan is being implemented.

If the proposed source or modification cannot meet all of these conditions, it will not be allowed to be constructed.

APPENDIX B

FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES

ACT TITLE	Does the statute allow for or require Federally authorized State programs to carry out provisions of the statute?	Which provisions remain under exclusive Federal jurisdiction?	For those provisions that are authorized to the State, must the State program be identical or equivalent? Can the State program be more stringent?	Are there authorization provisions requiring the States to adopt changes as Federal regulations change?
Federal Water Pollution Control Act (Clean Water Act)	States can be authorized to administer and enforce all provisions of statute, [particularly through the granting of NPDES permits, general permits, Federal facility permits, and dredge and fill permits]. States, if authorized, must develop compliance schedules for effluent limitations (§301), maximum daily load requirements, water quality standards (§303), and toxic chemicals listed in §307. States must assess attainment of water quality standards and identify strategies to achieve attainment of standards. States must implement a clean lake program and a non-point source management program.	Only EPA can establish national effluent limitations guidelines and standards for industrial categories of point-source discharges [but permits may be based on more stringent State standards].	State program must be "consistent" with all provisions of the Clean Water Act, must meet minimum regulations for State programs as defined by 40 CFR Part 121 (certification of activities requiring a federal permit) 40 CFR Part 123 (NPDES program), and 40 CFR Part 233 (dredge and fill program). States may adopt and enforce any discharge standard or limitation or other requirement respecting abatement of pollution if not less stringent than Federal requirements (CWA §510).	State program must at all times be in accordance with the Clean Water Act and guidelines promulgated pursuant to CWA. The statute does not address how quickly States must reflect changes to the CWA or to Federal guidelines or criteria.

APPENDIX B

FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES

(continued)

ACT TITLE	Does the statute allow for or require Federally authorized State programs to carry out provisions of the statute?	Which provisions remain under exclusive Federal jurisdiction?	For those provisions that are authorized to the State, must the State program be identical or equivalent? Can the State program be more stringent?	Are there authorization provisions requiring the States to adopt changes as Federal regulations change?
Resource Conservation and Recovery Act (RCRA)	States may be authorized to issue permits and enforce regulations for hazardous waste TSD facilities. States must develop a continuing programs to compile, publish, and submit to EPA a complete inventories of all hazardous waste facilities in the States. States must develop solid waste management plans that prohibit waste disposal in "open dumps" and that provide for the closing or upgrading of all existing open dumps.	EPA administers and enforces regulations on export of hazardous waste (RCRA §3017). HSWA regulations remain under Federal jurisdiction until State receives authorization	State programs must be "equivalent to Federal programs," "consistent with Federal and other approved State programs," and must provide "adequate enforcement of compliance with" Federal regulations. State programs may be more stringent. State solid waste plans must be "consistent with the minimum requirements" for approved State programs.	State programs must be consistent with regulations promulgated under RCRA. When new Federal regulations are promulgated under HSWA, EPA has authority to issue, deny, and enforce permits until the State receives interim or final authorization for an amended program. When Federal regulations are promulgated under RCRA, however, the regulations are not applicable until the State program (if an authorized State) adopts those regulations (must adopt within 2 years). State programs are inconsistent if they unreasonably restrict movement of hazardous waste across State borders or if they have no basis in human health or the environment and act as a prohibition on treatment, storage, and disposal of hazardous waste.

APPENDIX B

FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES
(continued)

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Underground Storage Tank (UST) Regulations	States may develop and enforce detection, prevention, and correction regulations for underground oil and hazardous substance storage tanks.	N.A.	State UST regulations must be "no less stringent" than Federal UST regulations. State regulations may be more stringent.	N.A.
Endangered Species Act	States may enter into a management agreement with the Department of the Interior to administer and manage areas established for the conservation of endangered or threatened species. States may establish program for conservation of all resident Federally-designed endangered or threatened species, including enforcement of protective regulations.	Only Department of Interior (DOI) may designate endangered species and critical habitats, promulgate protective regulations or prohibitions under this Act, and issue exemptions from these regulations.	State laws regarding export or import of endangered species "must not permit any activity prohibited under this Act, or prohibit any act authorized by an exemption under this Act." State laws concerning the taking of an endangered species "may be more restrictive" than Federal restrictions, "but not less restrictive."	N.A.
Fish and Wildlife Conservation Act of 1980	State may develop a conservation plan and program for nongame fish and wildlife not included in the Endangered Species Act. Program should provide an inventory of fish and wildlife species and determine actions to be taken to conserve species and their habitats.	N.A.	N.A.	N.A.

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FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES
(continued)

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Fish and Wildlife Coordination Act	State agency must be consulted before any water body in the State is modified by a Federal agency; such modification must be approved jointly by head of State agency, Federal agency performing the action, and Department of the Interior.	Only Department of Interior may acquire lands on which modification of a water body takes place, to ensure protection of fish and wildlife.	N.A.	N.A.
Rivers and Harbors Act	The building of bridges, causeways, dams, or dikes over navigable waters of the U.S. falls under State authority only when the navigable portions of such waters are within the State's boundaries and when construction plans are approved by the Army Corps of Engineers.	All other construction of bridges, causeways, dams, or dikes over U.S. navigable waters must be approved by Congress. All regulation of such construction and other modification of these waters is administered and enforced by the Federal government.	No restrictions on State regulations.	N.A.
Wild and Scenic Rivers Act	Rivers designated as State wild, scenic, or recreational rivers may apply for Federal designation as national wild, scenic, or recreational rivers. Management plans for rivers receiving such designation must be administered by the State. The State may participate in the administration and enforcement of management plans for rivers designated as wild, scenic, or recreational rivers by Congress.	Department of Interior prepares comprehensive management plans for all national wild, scenic, and recreational rivers, with State consultation. Only the Department of the Interior is authorized to acquire lands and interests within boundaries of the national wild, scenic, or recreational river.	Management programs for wild and scenic rivers may establish plans of "varying degrees of intensity" for the protection and development of the river.	N.A.

APPENDIX B

FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES
(continued)

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Safe Drinking Water Act				
- National Primary Drinking Water regulations	State may be authorized to administer and enforce national primary drinking water regulations (including MCLs and treatment technique requirements) and secondary drinking water regulations.	EPA may rescind, upon making certain showings, variances and exemptions granted by the State.	State primary drinking water regulations must be "no less stringent" than Federal regulations and may be more stringent. State conditions for granting variances or exemptions must be no less stringent than the conditions under which Federal variances and exemptions are granted. Conditions may be more stringent.	State primary drinking water regulations must be no less stringent than Federal standards promulgated under Act. The statute and regulations do not address how quickly States must adopt changes to the SDWA or to Federal primary drinking water regulations.
Safe Drinking Water Act - Underground Injection Control (UIC) programs	State may be authorized to issue and enforce UIC permits and all Federal regulations concerning underground injection.	N.A.	State regulations must be no less stringent than Federal UIC regulations. May be more stringent.	State regulations must be no less stringent than Federal standards promulgated under Act. The statute does not address how quickly States must reflect changes to SDWA or to Federal guidelines or criteria.
- Wellhead Protection	States are required to adopt programs to protect wells and recharge areas that supply public drinking water systems from contamination.	EPA is responsible for publishing guidance to assist States in preparing their wellhead protection programs (No Federal requirements).	N.A.	N.A.
Marine Protection, Research, and Sanctuaries Act	No provision for State administration of Ocean Dumping Permit program or National Marine Sanctuaries Program. States may be called upon to assist in enforcing permits.	All provisions of Act remain under Federal jurisdiction, including establishment and enforcement of Ocean Dumping permit regulations and National Marine Sanctuaries Program.	N.A.	N.A.

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Uranium Mill Tailings Radiation Control Act	State may implement and enforce Uranium Mill Licensing requirements and issue licenses for uranium processing and uranium tailing depository sites.	N.A.	State licensing requirements must be "equivalent or more stringent" than Federal standards.	State requirements must be equivalent to any requirements ever promulgated under this Act.
Coastal Zone Management Act	State may develop [and receive Federal grants for] Coastal Zone Management Program that includes the authority to administer land and water use regulations, establish criteria and standards for local or State implementation, develop siting standards for energy and other facilities, and make void local land and water use regulations.	State program and any amendments to it must be approved by Department of Commerce. Department may also overrule authorization of projects within the coastal zone.	No Federal program. State program must meet rules and regulations for such programs, including the assurance that local land and water use regulations are not "unreasonably restrictive."	N.A.
National Historic Preservation Act - Preservation of historical and archeological data threatened by Federal agency project	Approved State may prepare and implement a comprehensive statewide historic preservation program and nominate sites to the National Register of Historic Places.	Department of Interior authorized to regulate the preservation of historical and archeological data threatened by project funded, permitted, or implemented by a Federal agency.	N.A.	N.A.

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FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES
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Toxic Substances Control Act	States may establish [and receive Federal funding for] programs to prevent or eliminate unreasonable risks to health from toxic chemicals. Such programs complement but do not reduce the authority of EPA.	EPA retains primary authority to administer and regulate PCB processing, storage, and disposal and TCDD disposal.	States may not promulgate any rule concerning a toxic chemical regulated under TSCA, unless that rule is: (1) identical to a Federal requirement; (2) promulgated under Clean Air Act or other Federal law; (3) prohibits use of such chemical; or (4) is granted an exemption from EPA. TSCA program only enforces Federal laws.	N.A. [EPA retains primary regulatory and enforcement authority.]
Clean Air Act	States must adopt plan to implement, maintain, administer, and enforce national primary and secondary ambient air quality standards. States may be authorized to enforce standards of performance for new stationary sources, and national emission standards for hazardous air pollutants (NESHAPs).	EPA retains authority to develop air standards under the act, to determine the adequacy of State plans, and to promulgate regulations for a State that are necessary to bring a State plan into accordance with the Act.	State must "adequately" enforce national primary and secondary ambient air quality standards and follow the minimum requirements for State programs contained in 40 CFR Part 51, unless EPA allows for a temporary emergency suspension of such standards. States retain authority to adopt emission standards and limitations and control strategies more stringent than those necessary to meet minimal Federal ambient standards.	EPA will notify State of necessary revision. If State fails to adopt revised plan within designated period, EPA will propose new regulations for State.

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(continued)

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- State air toxic programs	Some States have adopted programs to regulate toxic air pollutants not regulated by NESHAPS. These programs vary from State to State.	The Act establishes no requirements for these State air toxic programs. EPA provides technical information to States through the National Air Toxics Information Clearinghouse (NATICH) and the Control Technology Center.	N.A.	N.A.
Occupational Safety and Health Act	State may assure responsibility for developing and enforcing OSHA standard through Federally-approved plan.	Department of Labor may retain authority to promulgate and enforce OSHA standards for at least first three years of approved State plan and until Department of Labor determines that OSHA criteria are being adequately enforced.	State standards must be "at least as effective" in providing safe and healthful employment and places of employment as Federal standards.	State standards always must be comparable to Federal standards promulgated under OSHA.
Hazardous Materials Transportation Act	States may participate in the enforcement of hazardous waste regulations through the Motor Carrier Safety Assistance program. State has some regulatory authority over intrastate hazardous waste transport [limited to traffic control and eliminating or reducing safety hazards peculiar to local areas].	Department of Transportation retains primary authority to develop and enforce hazardous waste transportation regulations.	State laws concerning hazardous waste transportation that are inconsistent with Federal OSHA requirements will be preempted by Federal standards. Any state may apply to have a State law considered "consistent" or to have an inconsistent law not be preempted by Federal law.	N.A.

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FEDERAL/STATE RELATIONSHIPS UNDER MAJOR ENVIRONMENTAL STATUTES
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Farmland Protection Policy Act	State is given no specific authority to regulate Federal program activities that may affect preservation of farmland. State may be provided technical assistance to develop programs or policies to limit the conversion of farmland to nonagricultural uses.	Department of Agriculture develops criteria for identifying the effects of Federal programs on the conversion of farmland to nonagricultural uses. These criteria should be used by Federal agencies to take into account adverse effects of their programs on preservation of farmland and to consider alternative action.	N.A.	N.A.
Flood Disaster Protection Act	In order to be eligible for Federal flood insurance coverage, State must adopt and enforce adequate land use and control measures for floodplains.	Department of Housing and Urban Development develops the criteria by which the adequacy of State programs are judged.	State land use and control measures must be consistent with Federal criteria (found in 24 CFR 1909-1910).	N.A.
Fish and Wildlife Improvement Act	State has no explicit authority. Fish and Wildlife service may contract for State assistance in enforcing Federal laws under the Fish and Wildlife Act.	Department of Interior retains primary regulatory and enforcement authority.	N.A.	N.A.

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